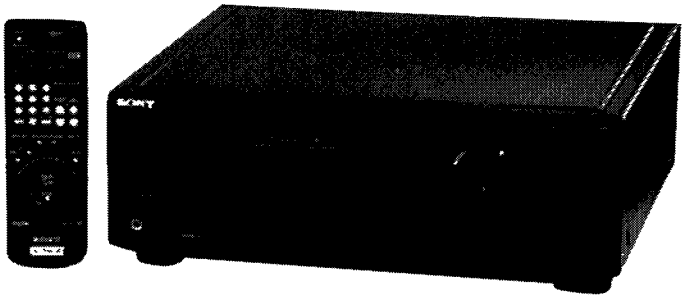
SLV-AV100C/AV100U

RMT-V209

SERVICE MANUAL

US Model
SLV-AV100U

Canadian Model
SLV-AV100C



(Photo : SLV-AV100U/RMT-V209)

Remote commander is available as a unit.
See page 6-1 for repair parts.

VCRplus+ Hi-Fi

H MECHANISM

• Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT IV (H MECHA) for MECHANICAL ADJUSTMENTS. (9-973-623-11)

SPECIFICATIONS

System

Channel coverage
VHF 2 to 13
UHF 14 to 69
CATV A-8 to A-1, A to W, W+1 to W+84

Antenna
75-ohm antenna terminal for VHF/UHF

VCR Inputs and outputs

VIDEO 1 IN
VIDEO 2 INPUT
LINE IN
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, phono jacks (2)
Input level: 327 mVrms
Input impedance: more than 47 kilohms

MONITOR VIDEO OUT
Phono jack (1)
Output signal: 1 Vp-p, 75 ohm (unbalanced), sync negative

TV IN
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, phono jack (2)
Input level: 327 mVrms
Input impedance: more than 47 kilohms

Amplifier

USA model:

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 8-ohm load, both channels driven, from 20-20,000 Hz, rated 80 watts per channel minimum RMS power, with no more than 0.09% total harmonic distortion from 250 milliwatts to rated output.

Power output

Canadian model:
Stereo mode (8 ohms at 20 Hz - 20 kHz less than 0.09% total harmonic distortion)
70 W + 70 W

Surround mode

USA model:
(8 ohms at 1 kHz, THD 0.8%)

Front	80 W/ch
Center	80 W (only in the PRO LOGIC and THEATER mode)
Rear	80 W

Dynamic power output
8 ohms: 125 W + 125 W
4 ohms: 165 W + 165 W

Canadian model:
(8 ohms at 1 kHz, THD 0.8%)

Front	70 W/ch
Center	70 W (only in the PRO LOGIC and THEATER mode)
Rear	70 W

Dynamic power output
8 ohms: 95 W + 95 W
4 ohms: 130 W + 130 W

Frequency response
CD, TAPE/MD, VIDEO 1, VIDEO 2, TV, and LINE : 10 Hz - 50 kHz ± 1 dB

Inputs

CD

Sensitivity	220 mV
Impedance	50 kilohms
S/N	82 dB,
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

TAPE/MD, VIDEO1, VIDEO2, TV, and LINE

Sensitivity	180 mV
Impedance	50 kilohms
S/N	82 dB,
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

Outputs
TAPE/MD REC OUT
Voltage 180 mV,
Impedance 10 kilohms
MIX AUDIO OUT
Voltage : 2 V
Impedance : 10 kilohms
PHONES
Accepts low and high impedance headphones

Muting
–20 dB

BASS BOOST
+10 dB at 70 Hz

VHS **INTEGRATED AMPLIFIER/ VIDEO CASSETTE RECORDER**

MICROFILM

992163211

SONY®

TONE
±8 dB at 100 Hz and 10 kHz

FM tuner section
Tuning range
87.5 - 108.0 MHz
Antenna terminal
75 ohms, unbalanced

AM tuner section
Tuning range
With 10 kHz interval**:
530 - 1710 kHz
With 9 kHz interval:
531 - 1710 kHz
Antenna Loop antenna

**You can change the AM tuning interval to 9 kHz. After turning in any AM station, turn off the power, hold down the FM/AM button and press the POWER switch. To reset the interval to 10 kHz, repeat the prodecure.

General

Power requirements
120 V AC, 60 Hz

Power consumption
190 W

AC outlet
Switched 120 W / 1A MAX

Operating temperature
5°C to 40°C

Storage temperature
–20°C to 60°C

Dimensions
Approx. 430 × 157 × 430 mm (17 × 6 1/4 × 17 inches) (w/h/d) including projecting parts and controls

Mass
USA model:
Approx. 13.3 kg (29 lb 6 oz)
Canadian model:
Approx. 13.0 kg (28 lb 11 oz)

Supplied accessories
Remote commander (1)
Size AA (R6) batteries (2)
75-ohm coaxial cable with F-type connectors (1)
Video cable (1 phono to 1 phono) (1)
AM loop antenna (1)
FM wire antenna (1)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

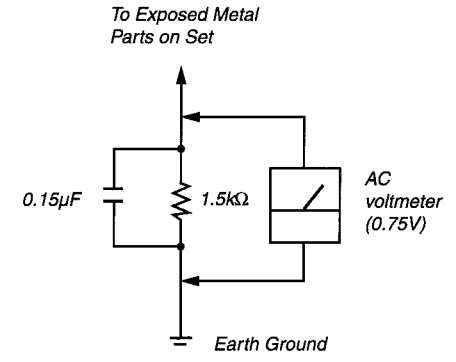


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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SERVICE NOTE

1. REMOVAL OF DRUM ASSEMBLY

1) Remove the screw ① (P3x8)
2) Remove the shaft ground assembly ②.
3) Remove three screws ③ (P3x6).
4) Remove the drum assembly ④.

Note: When attaching the drum assembly, be careful not to blur the contacting surface with fingerprint or like.
When attaching the shaft ground assembly, be careful not apply force to the spring section of it.

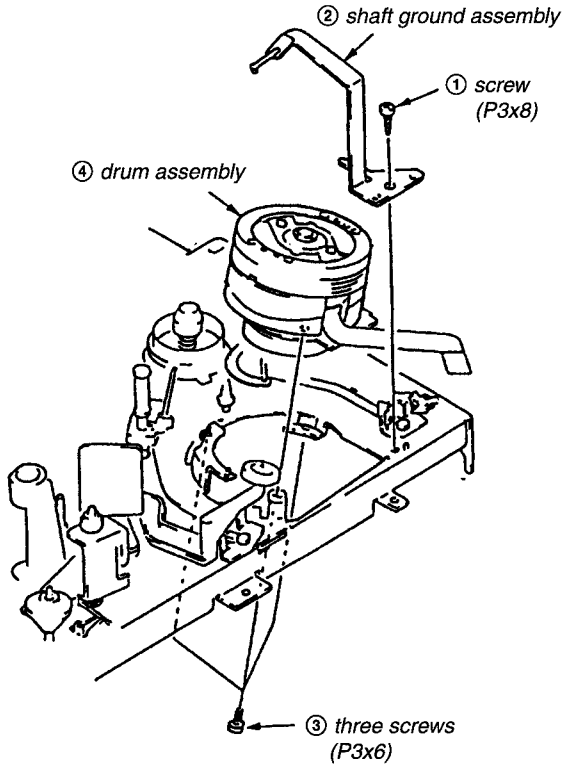

Fig. 1.

2. UPPER DRUM REPLACEMENT

2-1. Removal of Upper Drum

1) Remove the screw ① (P3x8).
2) Remove the shaft ground assembly ②.
3) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows. (16 points)
4) Remove the screws ③ (PSW 3x8) and tape out the rotary uppper drum assembly in the direction of arrow. (See Fig. 3.)
If it is difficult, remove by shaking the rotary upper drum gradually.
Note: If the drum can not be removed, check whether the solders have been removed or mot again.

2-2. Mounting Upper Drum

1) Mount the rotary upper drum assembly by aligning marked ➧ with marked⇒ of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match.

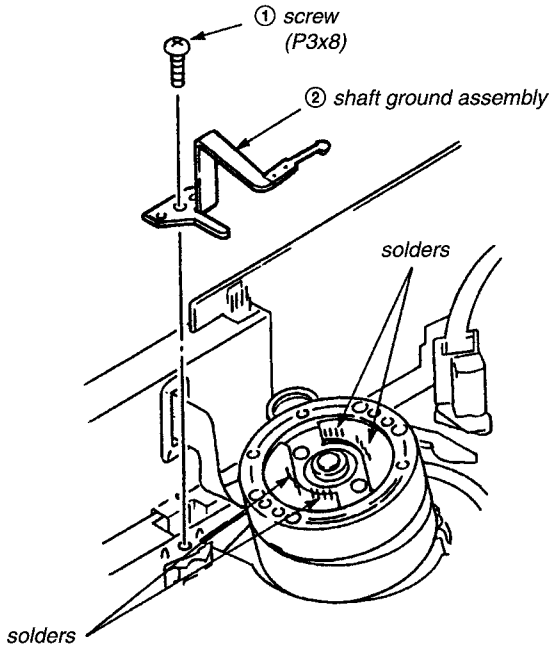

Fig. 2.

Note: When inserting the rotary upper drum assembly into the lower drum, be careful not to blur the contacting surface with fingerprint or like.

2) If it is difficult, mount the upper drum by shaking it gradually.
Note: Be careful not to damage the head. Make sure that the upper drum is tightly inserted.
3) Tighten two screws ③ (PSW 3x8).
Note: Temporary tighten two screws, After making sure that upper drum is tightly inserted, tighten the screws.

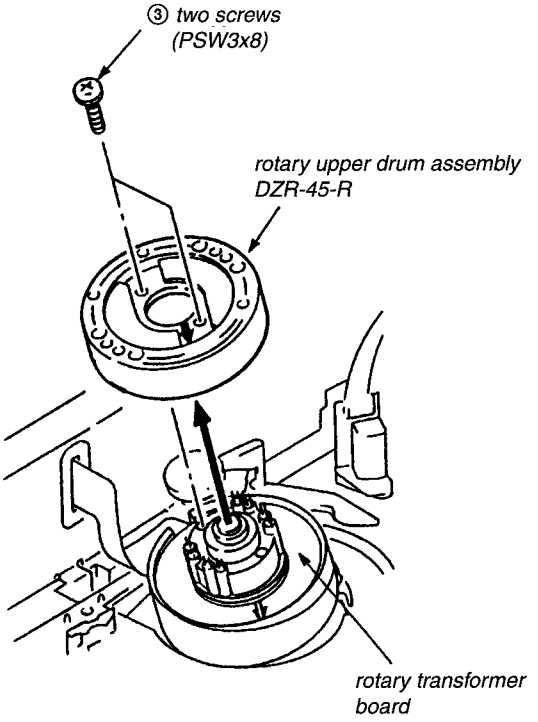

Fig. 3.

4) Solder 16 points on the rotary upper drum board. (See Fig. 2.)
5) Fix the shaft ground assembly ② using the screw ① (P3x8) so that the protrusion of the shaft ground assembly end contacts the center of the drum shaft, (See Fig. 2.)
   Note: When attaching the shaft ground assembly, be careful not to apply force to the spring section of it.
6) Tighten the screw ① (P3x8).

3. PERIODIC CHECK AND REPLACEMENT

(Refer to the VHS MECHANICAL ADJUSTMENT IV (H MECHA) MANUAL.)

In order to obtain the best perfotmance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

- The following must be done after every repair regardless of how many hours the user has operated the machine.

3-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-9) which has been dipped in cleaning fludi (Jig Ref. No. J-8) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)
2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

3-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

3-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that been dipped in cleaning fluid.

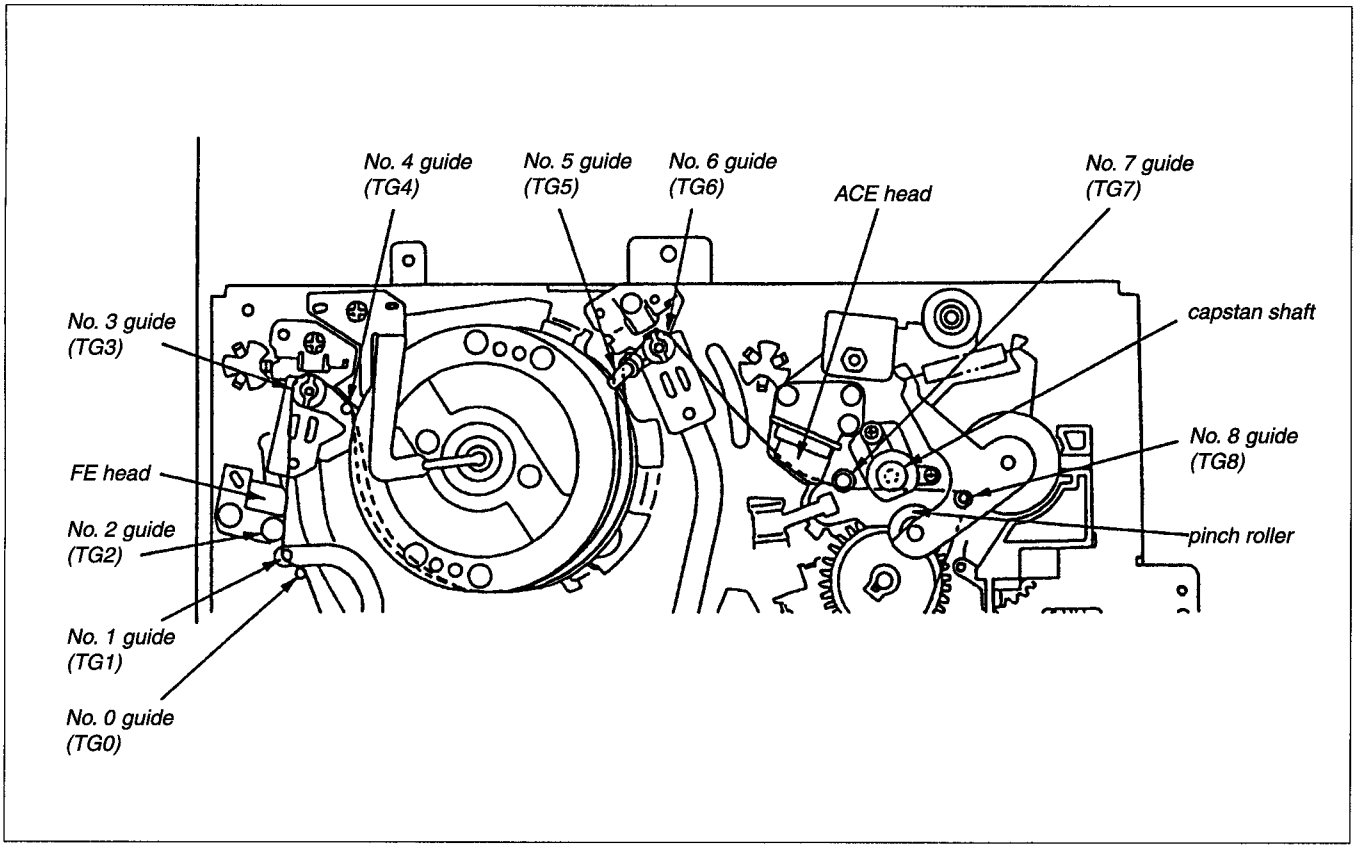

Fig. 4. Parts requiring cleaning

9-921-632-11

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Home A&V Products Company

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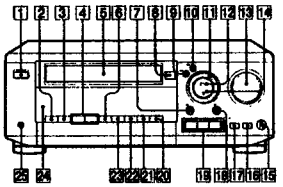
(Osaki East)

SECTION 1
GENERAL

This section is extracted from instruction manual.

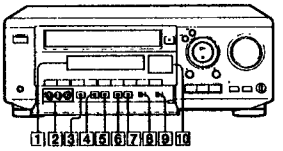
Index to parts and controls

Front panel



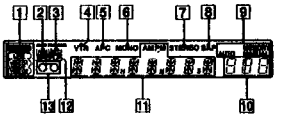
1 POWER switch/indicator
2 TV/VTR button (39, 92)
3 TAPE SPEED button (50)
4 CH/PRESET TUNING +/– buttons (41)
5 Tape compartment (47)
6 FM/AM button (45)
7 ⏸ PAUSE button (90)
8 ⏏ EJECT button (47)
9 ◀◀ REW button (47)
10 ▶▶ FF button (47)
11 Shuttle ring (45, 84)
12 ▷ PLAY button (47)
13 MASTER VOLUME control/indicator (47, 48)
14 ■ STOP button (90)
15 BALANCE L/R control (31, 82)
16 MUTING button (48)
17 SURROUND button/indicator (75, 78)
18 ● REC button (90)
19 FUNCTION buttons (45, 60, 67, 70, 72, 90)
20 STATUS button (48)
21 FM MODE button (90)
22 TUNING MODE button (45)
23 SHIFT button (46)
24 Remote sensor (5)
25 PHONES jack (7)

Front panel, with cover opened



1 Display window (48)
2 VIDEO 2 INPUT VIDEO/AUDIO L/R jacks (9)
3 EASY SET UP button (14, 17, 20, 23, 26, 28)
4 TIMER REC (ON/OFF) button (52)
5 QUICK TIMER button (85)
6 COUNTER RESET button (48)
7 MEMORY button (46)
8 EDIT ON/OFF switch (90)
9 VTR COMMAND MODE OFF/1/2/3 selector (62)
10 Tape operation indicators

Display window



1 Video input indicators (60)
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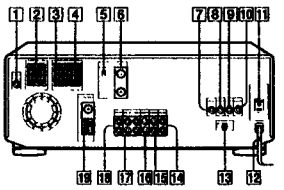
12 Tape speed indicators (50)
13 ▭ (tape) indicator

continued

Index to parts and controls (continued)

Rear panel



1 MIX OUT jack (7)
2 FRONT SPEAKERS L/R connectors (6)
3 SURROUND SPEAKERS REAR L/R connectors (7)
4 SURROUND SPEAKERS CENTER connectors (6)
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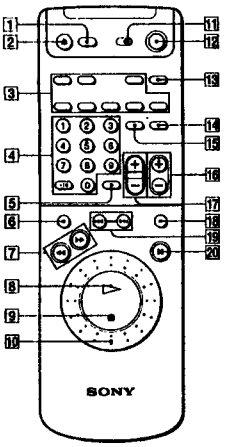
12 AC power cord (9)
13 CONTROL S OUT jack (13, 25)
14 LINE IN AUDIO L/R jacks (8)
15 VIDEO 1 IN AUDIO L/R jacks (8)
16 TV IN AUDIO L/R jacks (8)
17 TAPE/MD REC OUT/IN AUDIO L/R jacks (8)
18 CD IN AUDIO L/R jacks (8)
19 ANTENNA terminal (8)

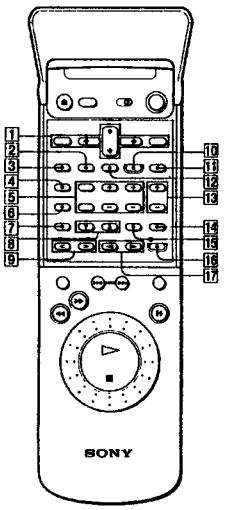
Remote commander



1 TV CONTROL ON button (65)
2 ⏏ EJECT button (47)
3 SYSTEM CONTROL/FUNCTION buttons (59–74, 91)
4 Number/>10 (66, 71, 74)/SHIFT (58) /SET (52) buttons
5 ENTER/RMS/START button (50)
6 SMART CUE/D SKIP button (66, 84)
7 ◀◀ REW/▶▶ FF buttons (47, 66, 67, 69, 71, 73, 84)
8 ▷ PLAY button (47, 66, 69, 71, 63)
9 ■ STOP button (47, 66, 67, 69, 71, 73)
10 Shuttle ring (45, 84)
11 COMMAND MODE VTR1/2/3 selector (62, 91)
12 SYSTEM OFF button (61)
13 VISUAL POWER button (62, 65, 74)
14 TV/VIDEO button (65)
15 VCR Plus+ button (51)
16 CH/PRESET +/– buttons (41)
17 MASTER VOL +/– buttons (47, 61)
18 MUTING button (48, 61)
19 ⏮/⏭ INDEX SEARCH (76)/AMS (66, 69, 71, 73) buttons
20 ⏸ PAUSE button (47, 66, 67, 70, 71, 73)

continued

Remote commander, with top cover opened



[1] MENU/CURSOR ↑/↓/←/→/EXECUTE buttons (30, 33)

[2] DISPLAY button (48-50)

[3] AUDIO MONITOR button (86, 89)

[4] AUTO button (84)

[5] TV POWER/TV/VIDEO/TV CH+/–/TV VOL +/– buttons (65)

[6] COUNTER RESET (48) button

[7] TRACKING AUTO/MANUAL (88)/ANALOG/□■ (CX) (74) button

[8] ▼/▲ TRACKING NORMAL/SLOW (88)/▼/▲ STILL ADJUST (84) buttons

[9] ◄II/II► FRAME buttons (74, 84)

[10] TIMER REC ON/OFF button (52, 55)

[11] TIMER CLEAR button (52, 56)

[12] TV WIDE button (64)

[13] CH +/– (64) buttons

[14] TAPE SPEED (SP/FP) button (50)

[15] STATUS button (48)

[16] ● REC button (50, 68, 70, 72)

[17] ◄/► DIRECTION (67, 72, 74)/► SIDE A/◄ SIDE B (73) buttons

Step 1 Unpacking

Check that you have received the following items with the unit:

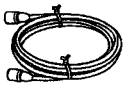
- **Remote commander**

- **AM loop antenna**

- **Size AA (R6) batteries**

- **FM wire antenna**

- **75-ohm coaxial cable with F-type connectors**

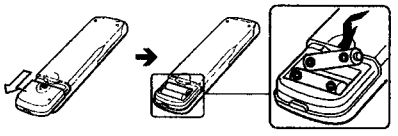


- **Video cable (1 phono to 1 phono)**

Step 2 Setting up the remote commander

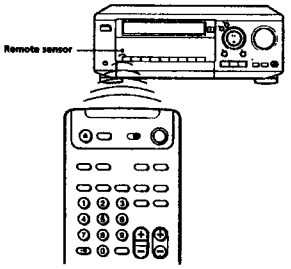
Inserting the batteries

Insert two size AA (R6) batteries matching the + and – on the batteries to the diagram inside the battery compartment.



Using the remote commander

You can use this remote commander to operate this unit, a TV, other VCRs, an LD deck, CD player, cassette deck, DAT deck, and MD deck (all equipment must be made by Sony). For details on how to operate other equipment with this remote commander, see "Audio/Video Equipment Operations" from page 59.



Notes

- The remote commander is initially set to control this unit. However, if it doesn't control the unit, press VHS TUNER first. If the remote commander still doesn't operate, read "Controlling VCRs" on page 62 first.
- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

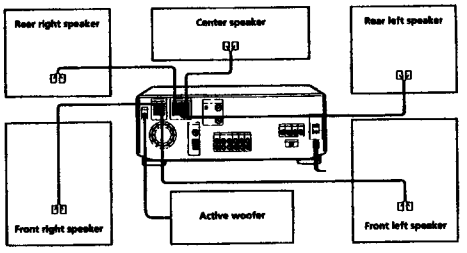
Step 3 Speaker systems hookup

To get the best possible sound from the unit, connect front (left and right), center, and rear (left and right) speakers. You need to connect either the center or rear speakers as well as the front speakers to enjoy Dolby Pro Logic Surround sound.

Before you connect...

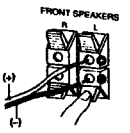
- Prepare speaker cords (one for each speaker) (not supplied).

- Be sure to match the speaker cords to the appropriate terminals on the components: + to +, and – to –. (If the cords are reversed, the sound will be distorted and the bass sound will not be reproduced well.)
- Do not connect the AC power cord until you finish all the connections through "Step 5 : TV antenna or cable hookups" on page 11.
- Be sure to make connections firmly to avoid hum and noise.



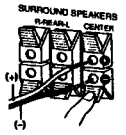
1 **Connect the front speakers to the FRONT SPEAKERS L/R connectors.**

Twist about 15 mm of the stripped ends of the cord. Then insert the stripped ends into the connectors as shown on the right.



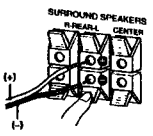
2 **Connect the center speaker to the SURROUND SPEAKERS CENTER connectors.**

Repeat step 1 above for the center speaker.
If you don't have a center speaker, skip this step.



3 **Connect the rear speakers to the SURROUND SPEAKERS REAR L/R connectors.**

Repeat step 1 above for the surround speakers.
If you don't have rear speakers, skip this step.

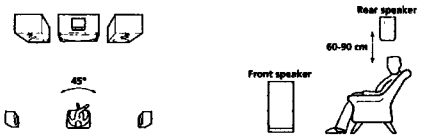


Note

- Be sure to connect both left and right speakers. If you connect only one speaker, the rear speaker won't reproduce the sound.

Placing the speakers

For optimum surround sound effect, place your speakers as shown below



Tips

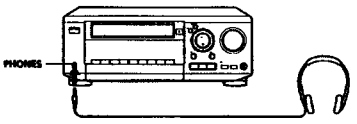
- Position the center speaker so the face of the speaker is aligned evenly with, or slightly behind the faces of the front left and right speakers
- Mount the surround (rear) left and right speakers on the walls so they face each other
- Position the front left and right speakers and center speaker as close to the same height as possible

Connecting an active woofer

For further sound improvement, connect an active woofer to MIX OUT with an audio cable (not supplied). The active woofer will increase bass response. The position of the active woofer does not affect the sound quality very much

Listening through the headphones

Connect the headphones to PHONES. No sound will be reproduced from the speakers

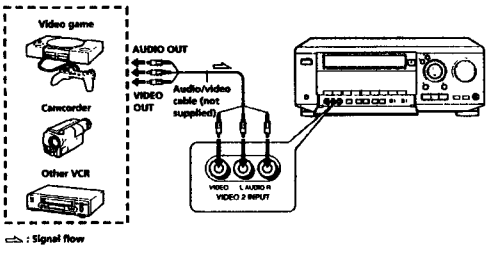


1 **Connect your audio/video equipment using audio and video cables (not supplied) referring to the illustration on page 8.**

Make sure you connect the audio and video cable plugs to jacks of the same color.

2 **Connect the AC power cord to the wall outlet.**

Connecting to the front VIDEO 2 INPUT jacks



Notes

- Make sure you connect the audio/video plugs to jacks of the same color
- If the other VCR is a monaural type, connect only the VIDEO and AUDIO L jacks.

Connecting to the AC OUTLET

You can connect an audio component (or components through an optional multi-outlet extension cord) to AC OUTLET on the rear of the unit. The power is supplied to AC OUTLET while the unit is turned on. The power supply stops when you turn off the unit. Using this function, you can turn on and turn off all the audio components connected to AC OUTLET at the same time if you leave those components' power switches on

Cautions

- Make sure you comply with the laws and regulations in your country for this connection.
- Make sure that the power consumption of the components connected to AC OUTLET doesn't exceed 120 watts. Do not connect high-wattage electrical home appliances such as electric irons, fans, or TVs to this outlet.

Notes

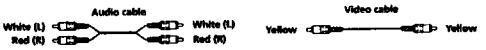
- The power will not be supplied to the components as long as the unit is turned off. Any electronic memory of the components may be cleared if you make this connection.
- Some audio components may not turn on with this connection

Step 4 Various audio/video hookups

The following connections with various audio/video equipment are recommended examples. The actual connections may vary depending on the equipment you have.

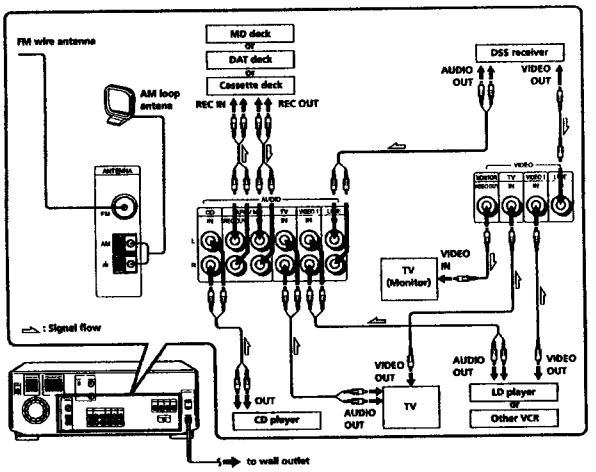
Before you connect....

- Prepare audio (not supplied) and video cables referring to the following table.



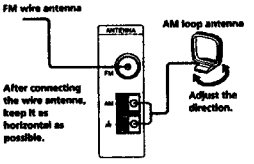
Equipment	Necessary cable for each piece of equipment
Tuner/CD player	One audio cable
MD deck/DAT deck/cassette deck	Two audio cables
Satellite tuner/LD player/other VCR	One video cable and one audio cable
TV	One video cable and one audio cable
Monitor	One video cable

- Turn off the power to all equipment before making any connections.
- Do not connect the AC power cord until all of the connections are complete.
- Be sure to make connections firmly to avoid hum and noise.



Connecting FM/AM antennas

To receive radio broadcasts with this unit, connect the FM/AM antennas (supplied).

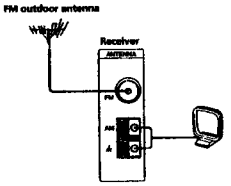

FM wire antenna
AM loop antenna
After connecting the wire antenna, keep it as horizontal as possible.
Adjust the direction.

If AM reception is poor

We recommend that you purchase and connect the optional Sony antenna to the unit if reception is weakened by ferroconcrete used in the construction of your apartment or building.

If you have poor FM reception

Connect a 75-ohm coaxial cable (not supplied) to an FM outdoor antenna.



Note

- To prevent noise pick-up, keep the AM loop antenna away from the unit and TV. When the noise is not cleared yet, turn off the TV.

Step 5 TV antenna or cable hookups

Selecting the best hookup option

There are many ways in which your VCR can be hooked up. To hook up your VCR so that it works best for you, first scan through the table below. Then use the accompanying diagrams and procedures on the following pages to set up your VCR.

If you have	Use	Refer to
TV that has video input	**Video (V) hookup**, then follow one of the hookups below.	**Page 12**
Cable box that is compatible with the VCR's cable box control feature	**Hookup 1**	**Pages 13 to 15**
No cable box or incompatible cable box with only a few scrambled channels	**Hookup 2**	**Pages 16 to18**
Antenna only, no cable TV	**Hookup 3**	**Pages 19 to 21**
Incompatible cable box with many scrambled channels	**Hookup 4**	**Pages 22 to 24**
DSS* receiver	**Hookup 5**	**Pages 25 to 26**
Incompatible cable box with only a few scrambled channels, using an A/B switch	**Hookup 6**	**Pages 27 to 29**

After you've completed the connections, follow the instructions for setup. During setup, if you need more details on the procedure described, page numbers are provided where you can find complete, step-by-step instructions.
After you've completed the setup, you're ready to use your unit's VCR. Procedures differ depending on the hookup you used For an overview, refer to "Quick reference to using the VCR" on the back cover

* DSS® is a registered trademark of DIRECTV, Inc., a unit of Hughes Electronics Corporation.

Before you get started

- Turn off the power to all equipment.
- Do not connect the AC power cords until all of the connections are completed.
- Be sure you make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, see your nearest Sony dealer or qualified technician.

Video (V) hookup

You will get a better picture by connecting your TV (monitor) to MONITOR VIDEO OUT jack as the illustration shown on page 8.

If you're no planning to use your unit's VCR to record programs

You're finished setting up the unit's VCR after you've made the connections shown on page 8.

If you want to record off-air or off your cable TV system

Complete these connections first, and then go to the following pages for antenna or cable hookups.

Caution

Connections between the VCR's VHF/UHF connector and the antenna terminals of the TV receiver should be made only as shown in the following instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices Never connect the output of the VCR to an antenna or make simultaneous (parallel) antenna and VCR connections at the antenna terminals or your receiver.

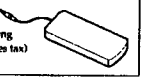
Notes to CATV system installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical

Hookup 1

Using cable box control

A Cable Mouse is available as an optional accessory for this model You can order directly from Sony by calling **1-800-488-7669** and asking for Cable Mouse
RM-CM101.
$14.95 + $3.00 (shipping, handling and aplicable sales tax)



Recommended use

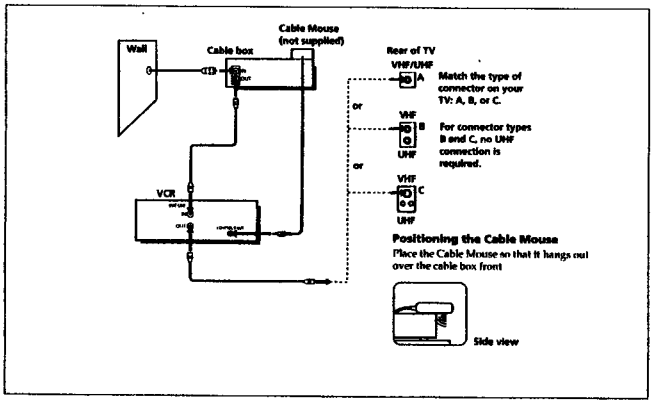
You should use this hookup if you have a cable box, especially if your cable system scrambles all or most channels. This hookup allows the VCR's cable box control feature to control the channel on the cable box, simplifying the recording process. A list of compatible cable boxes is on page 36.

What you can do with this hookup

- Record any channel using the VCR's cable box control feature to select channels on the cable box

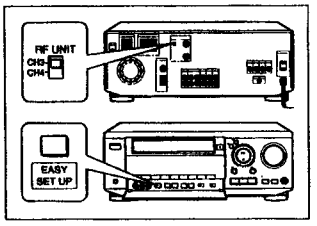
What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel



Hookup 1: VCR setup

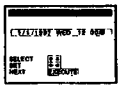
1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92.
If you made V connections (from page 12), you can skip this step.



2 Turn on your cable box.

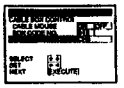
3 Press EASY SET UP on the VCR.

- The CLOCK SET menu appears. Set the date and time and press EXECUTE. For details, see page 33.

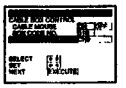


- The CABLE BOX CONTROL menu appears. Select ON. For details, see page 35.

- Enter your cable box code number and press CURSOR↓.

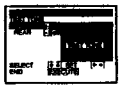


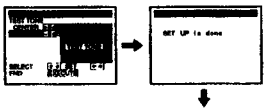
- Select your cable box output channel and press EXECUTE.



- The CENTER MODE selection menu appears. Select the center mode and press EXECUTE.
For details, see page 30.

- The TEST TONE selection menu appears
Set the volume of the center and rear speakers and press EXECUTE.
For details, see page 31.



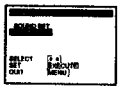


Hookup 1: VCR Plus + channel setup

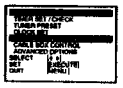
1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 44.

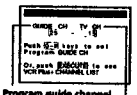
● Press MENU and select VHS MENU.



● Select SET VCR Plus+ CHANNELS.



● Enter the program guide channel, then the channel you use on your TV.



● Press EXECUTE.

Hookup 2

No cable box, or incompatible cable box with only a few scrambled channels

Recommended use

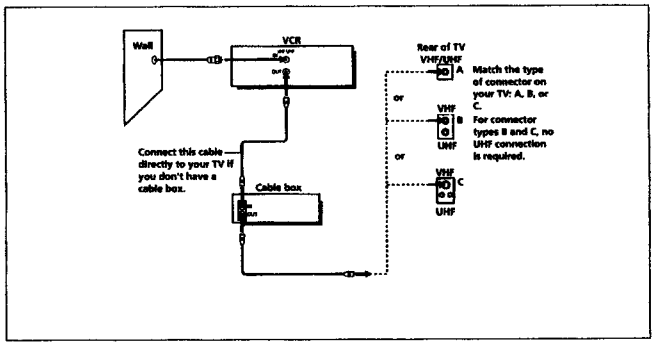
Use this hookup if you do not have a cable box. Also use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles only a few channels

What you can do with this hookup

• Record any unscrambled channel by selecting the channel on the VCR

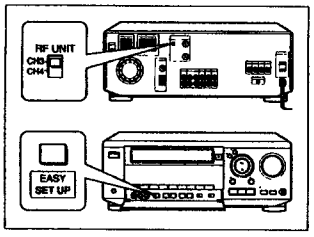
What you can't do

• Record scrambled channels that require a cable box



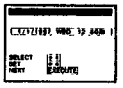
Hookup 2: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92.
If you made V connections (from page 12), you can skip this step.

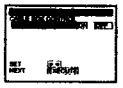


2 Press EASY SET UP on the VCR.

● The CLOCK SET menu appears. Set the date and time and press EXECUTE. For details, see page 33.

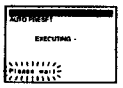


● The CABLE BOX CONTROL menu appears. Select OFF and press EXECUTE. For details, see page 35



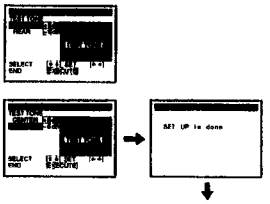
● The TUNER PRESET menu appears. Set ANTENNA / CABLE to CABLE and press EXECUTE. For details, see page 39

● The AUTO PRESET starts



● After completing AUTO PRESET, the CENTER MODE selection menu appears
Select the center mode, and press EXECUTE.
For details, see page 30

● The TEST TONE selection menu appears
Set the volume of the center and rear speakers and press EXECUTE.
For details, see page 31

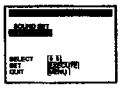


Hookup 2: VCR Plus+ channel setup

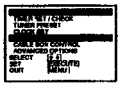
1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 44.

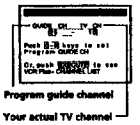
● Press MENU and select VHS MENU.



● Select SET VCR Plus+ CHANNELS.



● Enter the program guide channel, then the channel you use on your TV.



● Press EXECUTE.

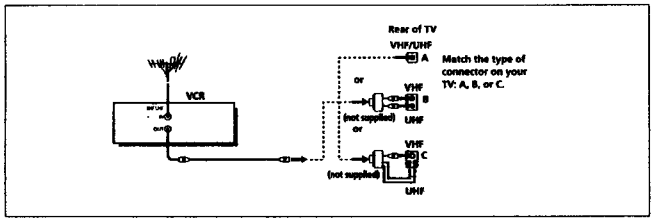
Hookup 3

Antenna hookup

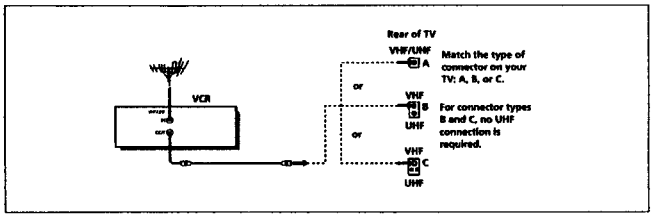
Make the following connections if you're using an antenna (if you don't have cable TV).

Use this hookup if you're using:

- VHF/UHF antenna (you get channels 2–13 and channels 14 and higher)
- UHF-only antenna (you get channels 14 and higher)
- Separate VHF and UHF antennas



Use this hookup if you're using a VHF-only antenna (you get channels 2–13 only)



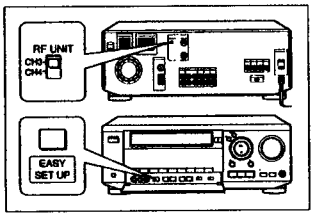
If you cannot connect your antenna cable to the VCR directly

If your antenna cable is a flat cable (300-ohm twin lead cable), attach an external antenna connector (not supplied) so you can connect the cable to the VHF/UHF IN connector. If you have separate cables for VHF and UHF antennas, you should use a U/V band mixer (not supplied) For details, see page 92.

Step 5 TV antenna or cable hookups (continued)

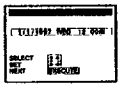
Hookup 3: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92. If you made V connection (from page 12), you can skip this step.



2 Press EASY SET UP on the VCR.

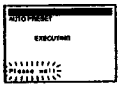
- The CLOCK SET menu appears. Set the date and time and press EXECUTE. For details, see page 33



- The CABLE BOX CONTROL menu appears. Select OFF and press EXECUTE. For details, see page 35.

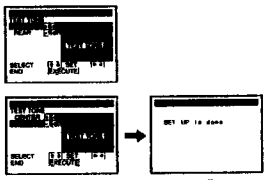
- The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press EXECUTE. For details, see page 39.

- The AUTO PRESET starts



- After completing AUTO PRESET, the CENTER MODE selection menu appears
Select the center mode, and press EXECUTE
For details, see page 30.

- The TEST TONE selection menu appears.
Set the volume of the center and rear speakers and press EXECUTE.
For details, see page 31.

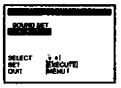


Hookup 3: VCR Plus+ channel setup

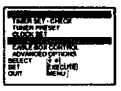
1 Find the VCR Plus+ Channel Listing in your program guide For details, see page 43.

2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 44

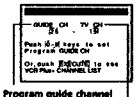
- Press MENU and select VHS MENU.



- Select SET VCR Plus+ CHANNELS.



- Enter the program guide channel, then the channel you use on your TV



- Press EXECUTE.

Step 5 TV antenna or cable hookups (continued)

Hookup 4

Incompatible cable box with many scrambled channels

Recommended use

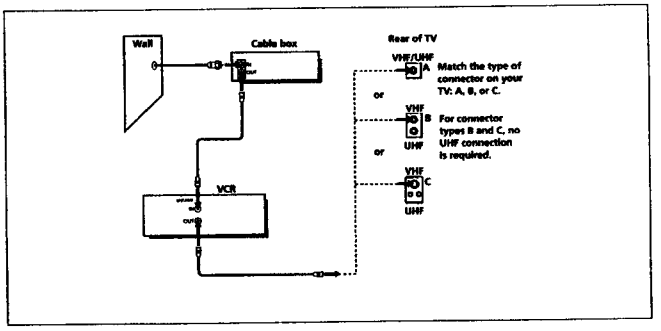
Use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles all or most channels.

What you can do with this hookup

- Record any channel by selecting the channel on the cable box

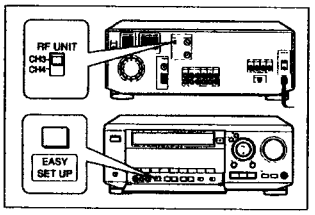
What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel
- Select channels directly on the VCR



Hookup 4: VCR setup

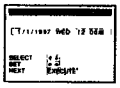
1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92 If you made V connection (from page 12), you can skip this step.



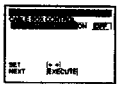
2 Turn on your cable box.

3 Press EASY SET UP on the VCR

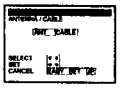
- The CLOCK SET menu appears Set date and time and press EXECUTE For details, see page 33



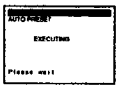
- The CABLE BOX CONTROL menu appears. Select OFF and press EXECUTE For details, see page 35.



- The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press EXECUTE For details, see page 79

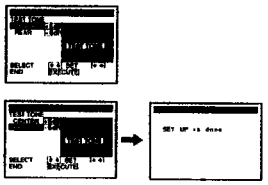


- The AUTO PRESET starts



- After completing AUTO PRESET, the CENTER MODE selection menu appears.
Select the center mode, and press EXECUTE
For details, see page 30.

- The TEST TONE selection menu appears
Set the volume of the center and rear speakers and press EXECUTE
For details, see page 31.



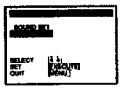
Step 5 TV antenna or cable hookups (continued)

Hookup 4: VCR Plus+ channel setup

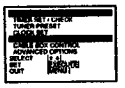
1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 Enter all the channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 44.

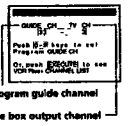
- Press MENU and select VHS MENU.



- Select SET VCR Plus+ CHANNELS.



- Enter the program guide channel, then the cable box output channel



- Press EXECUTE.

Hookup 5

DSS (Digital Satellite System) receiver

Recommended use

Use this hookup if you have a DSS receiver. It allows the VCR's cable box control feature to control the channel on the DSS receiver, simplifying the recording process A list of compatible DSS receivers is on page 37

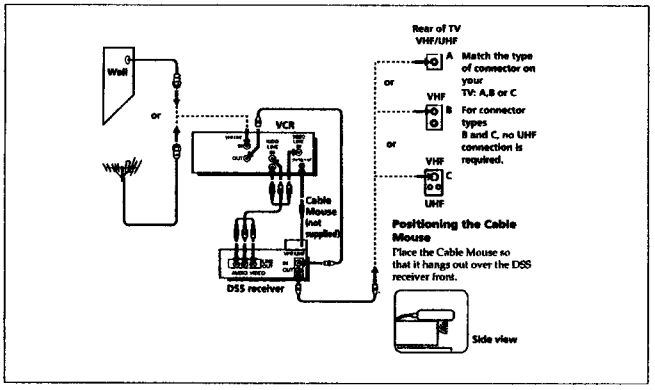
DSS (Digital Satellite System) is a satellite broadcast that provides superior digital-quality video and crisp digital-quality audio. A variety of program packages are available through your program providers. It also has program guides that are sorted by program categories.

What you can do with this hookup

- Record any channels using the VCR's cable box control feature to select channels on the DSS receiver.

What you can't do

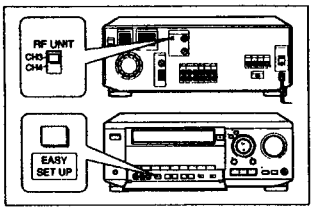
- Record with the DSS receiver turned off
- Record any channels from cable or an antenna (To record channels from cable or an antenna, turn off the cable box control feature.)
- Use a cable box
- Record programs with VCR Plus+



Step 5 TV antenna or cable hookups (continued)

Hookup 5: VCR setup

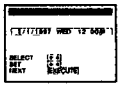
1 Set the RF UNIT switch to CH 3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92. If you made V connection (from page 12), you can skip this step.



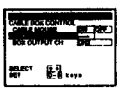
2 Turn on your DSS receiver.

3 Press EASY SET UP on the VCR.

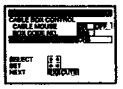
- The CLOCK SET menu appears Set the date and time and press EXECUTE. For details, see page 33



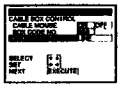
- The CABLE BOX CONTROL menu appears
Select ON. For details, see page 35.



- Enter your DSS receiver code number and press CURSOR↓.
For details, see page 35.

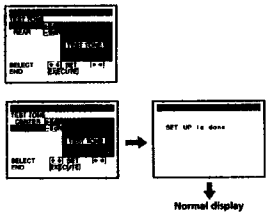


- Set your DSS receiver output channel (BOX OUTPUT CH) to LINE and press EXECUTE.



- The CENTER MODE selection menu appears.
Select the center mode and press EXECUTE
For details, see page 30.

- The TEST TONE selection menu appears
Set the volume of the center and rear speakers and press EXECUTE.
For details, see page 31.



Notes

To successfully record a program from the DSS receiver, proceed as follows:

- Leave the DSS receiver on all the time
- Turn off the display (menu screen, channel number, etc.) of the DSS receiver
- To record or receive locked channels, unlock the channel before the VCR starts recording.
- To set pay-per-view programs in the timer setting, order the pay-per-view program before the VCR starts recording.
- Some programs are copy protected You cannot record these programs.

Hookup 6

Incompatible cable box with only a few scrambled channels, using an A/B switch

Recommended use

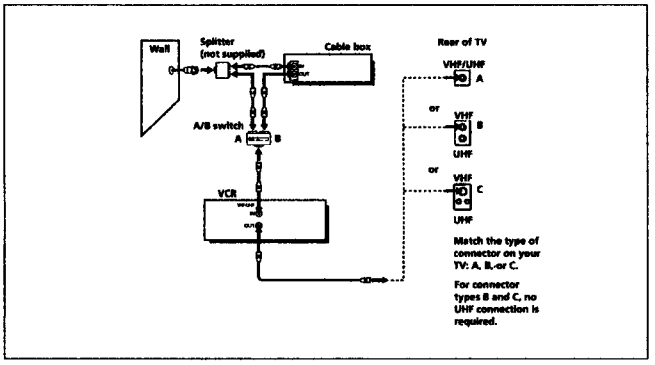
By using an A/B switch (not supplied), this hookup allows you to record both scrambled and unscrambled channels conveniently.

What you can do with this hookup

- Record any unscrambled channel by selecting the channel directly on the VCR (the A/B switch is set to A)
- Record any scrambled channel by selecting the channel on the cable box (the A/B switch is set to B)

What you can't do

- Record one scrambled channel while watching another channel (the A/B switch is set to B)



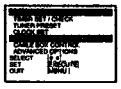
Hookup 6: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

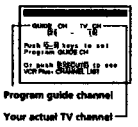
2 For unscrambled channels, if the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 44.

- Press MENU and select VHS MENU.

- Select SET VCR Plus+ CHANNELS.



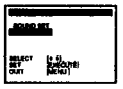
- Enter the program guide channel, then the channel you use on your TV.



- Press EXECUTE

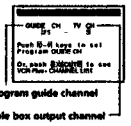
3 For scrambled channels, enter all the scrambled channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 44.

- Press MENU and select VHS MENU.



- Select SET VCR Plus+ CHANNELS.

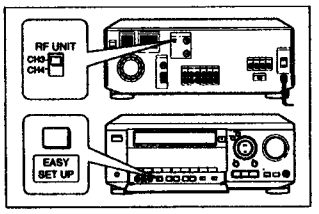
- Enter the program guide channel, then the cable box output channel



Step 5 TV antenna or cable hookups (continued)

Hookup 6: VCR setup

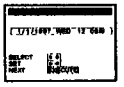
1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
For details, see page 92. If you made V connection (from page 12), you can skip this step.



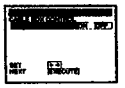
2 Set the A/B switch to "A."

3 Press EASY SET UP on the VCR.

- The CLOCK SET menu appears. Set the date and time and press EXECUTE. For details, see page 33.

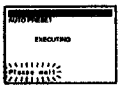


- The CABLE BOX CONTROL menu appears. Select OFF and press EXECUTE. For details, see page 35.



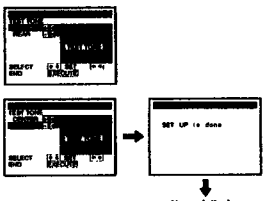
- The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press EXECUTE. For details, see page 39.

- The AUTO PRESET starts.



- After completing AUTO PRESET, the CENTER MODE selection menu appears.
Select the center mode, and press EXECUTE.
For details, see page 30.

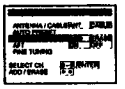
- The TEST TONE selection menu appears.
Set the volume of the center and rear speakers and press EXECUTE.
For details, see page 31.



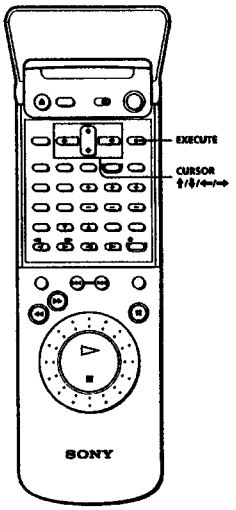
4 Preset the cable box output channel (usually 2, 3 or 4). For details, see page 35.

- Press MENU. Then press CURSOR ↑/↓ to move the cursor (▯) to VHS MENU, and press EXECUTE.
- Select TUNER PRESET.

- Enter the cable box output channel. Set MANUAL SET to ADD and press EXECUTE



Adjusting the SOUND SET with EASY SET UP



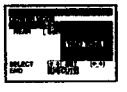
You can set the center mode for the PROLOGIC and THEATER sound fields, and the relative volume level of the center and rear speakers for the PROLOGIC sound field with EASY SET UP. (For sound field explanations, see page 75.)

1 Complete each operation other than SOUND SET with EASY SET UP referring to pages 13 to 30.

2 After the CENTER MODE selection menu appears, press ←/→ to select the center mode.
See "Selecting the center mode" on page 32 for details.

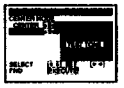
3 Press EXECUTE.
Each speaker emits the test tone in turn (the speaker emitting the test tone is indicated by the red speaker mark).
Check each speaker's relative volume balance with the test tones.

4 Press CURSOR ↑/↓ to move the cursor (▯) to CENTER. Then, press CURSOR ←/→ to increase or decrease the volume of the center speaker so you have an equal volume balance with the other speakers at your listening position.
If you selected PHANTOM in step 2, skip this step
This volume adjustment affects only the PROLOGIC sound field.



5 Press CURSOR ↑/↓ to move the cursor (I) to REAR. Then, press CURSOR ←/→ to increase or decrease the volume of the rear speakers so you have an equal volume balance with the other speakers at your listening position.

If you selected 3CH LOGIC in step 2, skip this step.
The surround speakers' volume balance is always even
This volume adjustment affects only the PROLOGIC sound field.



6 Press EXECUTE.

After "SET UP is done" screen is appears, a channel appears on the TV screen

Tips

- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit.
- If you change the speaker configuration, reset the modes. See "Reconfiguring the PROLOGIC and THEATER sound fields" on page 82
- If you need to further increase the volume of the rear speakers from the maximum level (+10 dB), see "Increasing the maximum rear speaker level" on page 83

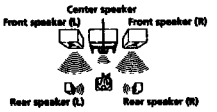
Adjusting the SOUND SET with EASY SET UP (continued)

Selecting the center mode

The center mode is related to the PROLOGIC and THEATER sound fields (See "Taking advantage of the sound fields" on page 75 for a detailed explanation on sound fields.) You must have rear left and right speakers, or one center speaker other than the front left and right speakers for these sound fields.
You can select NORMAL, WIDE, PHANTOM, or 3CH LOGIC as the center mode. Each mode is designed for a different speaker configuration. Select the most suitable mode considering the following conditions:

If you have front and rear speakers, and a small center speaker

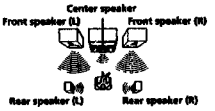
Select NORMAL. The center channel bass sound is output from the front speakers. This is because small center speakers cannot reproduce bass sound sufficiently.



Speaker arrangement display on the TV screen

If you have front and rear speakers, and a large center speaker

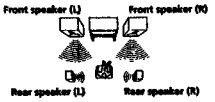
Select WIDE. The combination of this speaker configuration and mode selection is ideal for Dolby Pro Logic Surround sound.



Speaker arrangement display on the TV screen

If you have only front and rear speakers

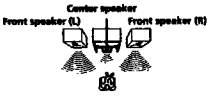
Select PHANTOM. The center channel sound is output from the front speakers.



Speaker arrangement display on the TV screen

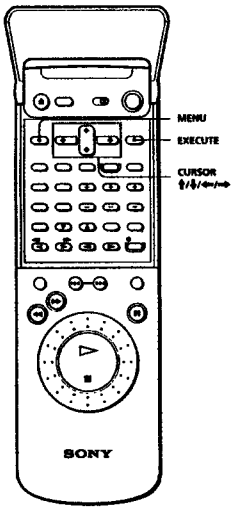
If you have only front and center speakers

Select 3CH LOGIC (3 Channel Logic). The rear channel sound is output from the front speakers. You can enjoy some surround sound atmosphere, even if you don't have surround (rear) speakers.



Speaker arrangement display on the TV screen

Setting the clock



Tip

- To change the digits during setting, press CURSOR ← to return to the item to be changed, and select the digits using CURSOR ↑/↓.

Note

- The menu disappears automatically if you don't proceed within a few minutes.

You must set the time and date on the unit to be able to use the timer recording features. If the unit clock was not set in the EASY SET UP procedure, you need to set it manually.

Before you start...

- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually.
  - If connected with only the antenna cable, set the TV to the video channel.

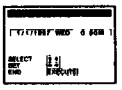
Setting the clock

1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to VHS MENU, and press EXECUTE

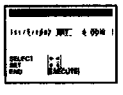
2 Press CURSOR ↑/↓ to move the cursor (I) to CLOCK SET and press EXECUTE.

When using the EASY SET UP procedure, skip this step.



3 Set the month using CURSOR ↑/↓.

4 Press CURSOR → to highlight the date and the day of the week.

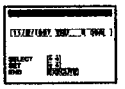


continued

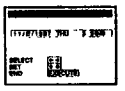
Setting the clock (continued)

5 Press CURSOR ↑/↓ to set the date.

The day of the week is set automatically.



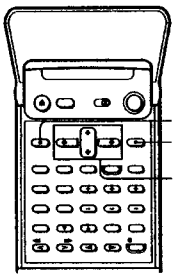
6 Set the year, hour, and minutes in sequence using CURSOR → to highlight the item to be set, and CURSOR ↑/↓ to select the digits.

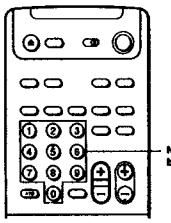


7 Press EXECUTE to confirm the setting.

Setting up cable box control

(Skip this section if you are using Hookup 2, 3, 4 or 6.)





A Cable Mouse is available as an optional accessory for this model. You can order directly from Sony by calling **1-800-488-7669** and asking for Cable Mouse **RM-CM101**. $14.95 + $3.00 (shipping, handling and aplicable sales tax)

Your unit's VCR includes a cable box control feature that allows the unit's VCR to control most brands of cable boxes/DSS receivers via the Cable Mouse. With cable box control, the unit's VCR controls channels on the cable box/DSS receiver for timer recording. You can also use the VCR's remote commander to change channels on the cable box/DSS receiver whenever the cable box/DSS receiver is turned on even if the unit's VCR is turned off. To use cable box control, you need to connect the Cable Mouse (pages 13 and 25) and set the code number and output channel.

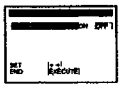
This unit is programed with codes necessary to control channel selection on most brands of cable boxes at the time this unit was manufactured. If you have a cable box that is incompatible with this VCR, contact your cable operator — they may be able to provide you with a compatible cable box.

1 Lift the top cover of the remote commander.

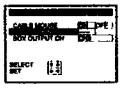
Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

2 Press CURSOR ↑/↓ to move the cursor (▮) to CABLE BOX CONTROL and press EXECUTE.

When using the EASY SET UP procedure, skip this step.



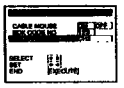
3 Press CURSOR ←/→ to select ON.



4 Close the top cover of the remote commander

Press the number buttons to enter the cable box/DSS receiver code number, then press CURSOR ↓.

Find your cable box/DSS receiver code number from the chart below.



continued

Cable box brand	Code numbers
Linsay	451
Macom	044
Magnavox	038, 043, 080, 345
Memorex	011
Movie Time	089, 167, 214
Northcoast	325
Novaplex	629
NSC	074, 081, 167, 214
Oak	018, 030, 259
Omniview	382
Panasonic	032, 118
Paragon	011
Philips	036, 038, 039, 040, 041, 042, 071, 301, 345
Philips ECG	253
Pioneer	034, 155, 271, 544
Popular Mechanics	411
Pulsar	011
RCA	032
Realistic	218
Recoton	411
Regal	031, 270, 284, 290
Regency	019
Rembrandt	081
RK	315, 317, 490
Samsung	051, 155
Satbox	386
Scientific Atlanta	017, 019, 028, 298, 338
Sears	521
Sharp	324
Signal	051
Signature	022
SL Marx	051
Spectravision	069
Sprucer	032, 318
Standard Components	107, 166
Starcom	014, 026, 058, 109

Cable box brand	Code numbers
Stargate	026, 051
STS	167
Sylvania	012
T-Cable Teletext	116
Tandy	209
Tatung	108
Teknica	157
Tele +1	454
TeleCaption	232
Teleservice	292
Texscan	012, 107
TFC	321
Timeless	429
Tocom	023, 024, 070
Toshiba	011
Tudi	297
TV86	074
TV COM	018, 030, 259
Uniden	236
Unika	033, 164, 218
United Artists	018
United Cable	014
Universal	033, 050, 067, 088, 089, 164, 202, 218, 333
Videoway	261
Viditech	255
Viewstar	018, 071 074, 122, 222, 269, 360
Westinwster cable	116
Zenith	011, 065, 536
Zentek	411
Wave Master	576

DSS receiver brand	Code numbers
Sony	650
RCA	577

Setting up cable box control (continued)

5 If you want to control a cable box, press CURSOR ←/→ to select the output channel for the cable box, then press EXECUTE.

If you want to control a DSS receiver, select LINE, then press EXECUTE.

Cable box and DSS receiver brand and the corresponding code numbers

If more than one code number is listed, try entering them one by one, until you come to the correct code for your equipment.

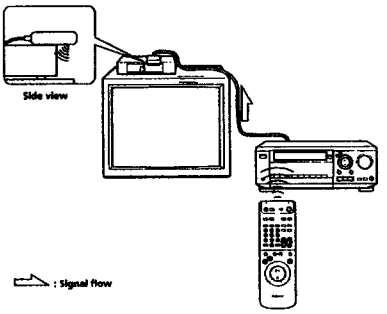
Cable box brand	Code numbers
ABC	018, 022, 024, 028, 217
Antronix	218
Archer	033, 050, 164, 218
BBT	278
Cable Star	067
Cableteenna	033
Cable time	172, 282, 388, 459
Century	164
Citizen	164, 326, 327
Clyde Cablevision	097
Colour Voice	036, 042
Comband	243, 244
Comtronics	051, 071
Decsat	434
Diamond	046
Eagle Comtronics	051

Cable box brand	Code numbers
Eastern	013, 295
Electriced	089
Electus	055
Filmnet	454
Focus	411
Garrard	164
GC Electronics	027, 067, 341
GE	243, 244
GEC	097
Gemini	026, 068, 081, 293
General Instrument	022, 287, 487
Hamlin	020, 031, 045, 270, 284
Hitachi	022
Jasco	164, 326
Jerrold	014, 022, 025 026, 035, 037, 058, 109, 297, 487

Setting up cable box control (continued)

To ensure correct operation

- Place the Cable Mouse so that it hangs out over the cable box/DSS receiver front.
- Do not place the cable box/DSS receiver on top of the VCR.
- Position the cable box/DSS receiver away from the VCR.
- Point the remote commander at the VCR, not at the cable box/DSS receiver.



To check the cable box control setting

1 Press CH +/– on the remote commander. Does the channel indicator on the cable box/DSS receiver change? (Point the remote commander at the VCR, not at the cable box/DSS receiver.)

2 Press all 10 number buttons (0 to 9) on the remote commander. Does the channel indicator on the cable box/DSS receiver change?

If the answer to both 1 and 2 is "yes," you have made the correct setting.

If you cannot get your unit's VCR to control the cable box/DSS receiver

- Check that the Cable Mouse is connected to the CABLE BOX CONTROL jack on the VCR.
- Check the position of the Cable Mouse.
- Place the cable box/DSS receiver and VCR away from each other. Do not place the cable box/DSS receiver on top of the VCR.
- Try the setup again making sure to use the correct control code. If the cable box still does not respond, try the other codes that are listed.

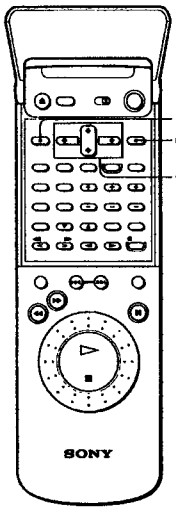
If your cable box still does not operate with the Cable Mouse, contact your cable company to see if they can provide you with a compatible cable box.

Note

- Make sure you turn off the VCR when you plug in or unplug the Cable Mouse. If you unplug the Cable Mouse and plug it in again, turn on the VCR before you use the cable box/DSS receiver control feature

Presetting channels

(Skip this section if you are using cable box/DSS receiver control.)



This unit's VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting. Then, if there are any unwanted channels, disable them manually. If you have decided which channels you wish to preset, set them directly using manual presetting.

Before you start...

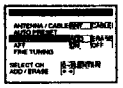
- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using V connections, set the TV to video input.
- Press TV/VTR to display the VTR indicator in the VCR's display window.
- Press VHS TUNER so that a channel number appears in the VCR's display window.

Presetting all receivable channels automatically

1 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

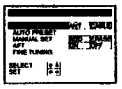
2 Press CURSOR ↑/↓ to move the cursor (▮) to TUNER PRESET and press EXECUTE.

When using the EASY SET UP procedure, skip this step.



3 • To preset cable TV channels:

Press CURSOR ←/→ to set ANTENNA/CABLE to CABLE



• To preset VHF and UHF channels:

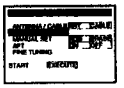
Press CURSOR ←/→ to set ANTENNA/CABLE to ANT.

continued

Presetting channels (continued)

4 Press CURSOR ↑/↓ to select AUTO PRESET then press EXECUTE

All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.



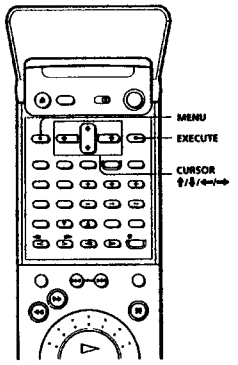
Tip

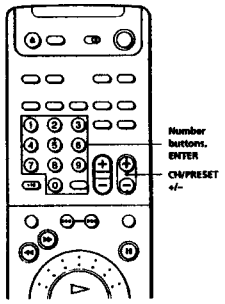
- When receiving a VHF, UHF or CATV channel, the display changes as follows each time you press the DISPLAY button

Channel number, sound field mark and muting mark

↕

No display

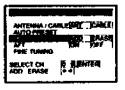




Presetting/disabling channels manually

1 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

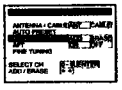
2 Select TUNER PRESET.



3 • To preset a channel:

1 Press the number buttons to enter the channel number, then press ENTER.

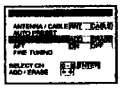
2 Press CURSOR ←/→ to set MANUAL SET to ADD.



• To disable a channel:

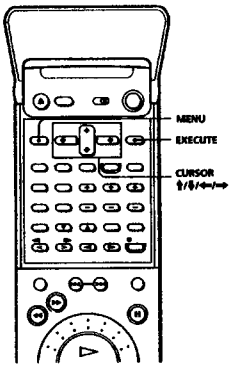
1 Press CH/PRESET +/– to select the channel number.

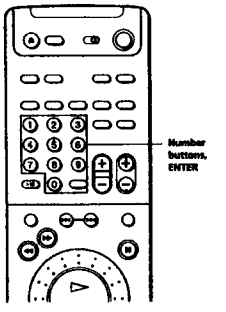
2 Press CURSOR ←/→ to set MANUAL SET to ERASE.



4 Repeat step 3 to preset or disable channels as required, then press EXECUTE.

Presetting channels (continued)





If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture of a channel is not clear, you can also use the manual tuning function.

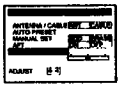
1 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

2 Select TUNER PRESET.

3 Press the number buttons to select the channel you want to fine-tune, then press ENTER.

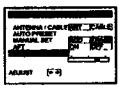
4 Press CURSOR ↑/↓ to select FINE TUNING.

The fine tuning meter appears.



5 Press CURSOR ←/→ to adjust to a clearer picture.

Note that the AFT setting switches to OFF.

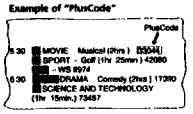


Setting up VCR Plus+

How VCR Plus+ works

Whenever you want to record a TV program, all you need to do is look up the program's "PlusCode," a number assigned to each program that's published in the TV section of most newspapers, cable TV listings, and even TV GUIDE magazine. Then, just enter the PlusCode of the program you want and the VCR is automatically programmed to record that show. It's that simple

Example of "PlusCode"

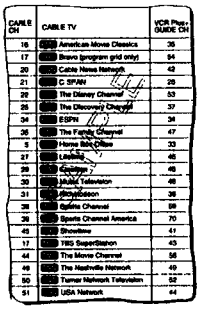


How to set up your unit's VCR

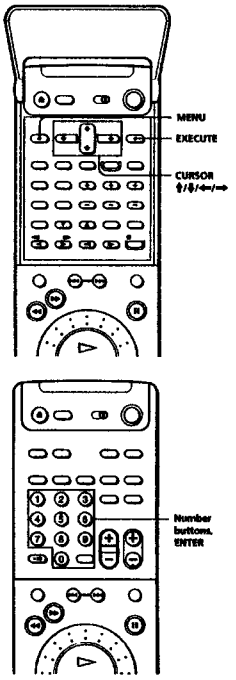
Setting up your VCR involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide). To get the guide channel numbers, find the "Channel Line-up Chart" in the program guide for your area that features VCR PlusCodes. It usually looks like the example below

For each channel your VCR receives, use the Channel Line-up Chart to check that the channel numbers match. For example, if HBO is listed in the Channel Line-up Chart on channel 33, and your VCR receives HBO on channel 5, you need to coordinate these numbers using the following procedure. For channels in which the numbers are the same, you can skip this procedure.

Example of "Channel Line-up Chart"

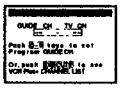

CABLE CH
CABLE TV
VCR Plus+ GUIDE CH
16 American Movie Classics 35
17 Bravo (program grid only) 94
20 Cable News Network 42
21 C SPAN 28
22 The Disney Channel 53
25 The Discovery Channel 37
34 ESPN 34
35 The Family Channel 47
5 Home Box Office 33
27 Lifetime 46
28 Cinemax 2 48
30 Music Television 49
31 Nickelodeon 36
38 Nostalgia Channel 69
39 Sports Channel America 70
40 Showtime 41
17 TBS SuperStation 43
44 The Movie Channel 58
46 The Nashville Network 49
50 Turner Network Television 52
51 USA Network 44

Setting up VCR Plus+ (continued)

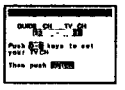


1 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

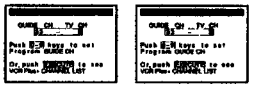
2 Move the cursor (▮) to SET VCR Plus+ CHANNELS and press EXECUTE.



3 Enter the channel number assigned in the program guide and press ENTER.



4 • If you made Hookup 1, 2 or 3: Enter the actual number on your TV (and VCR) and press ENTER.
- If you made Hookup 4: Enter the cable output channel (usually 2, 3 or 4) and press ENTER.
- If you made Hookup 6: Enter the actual number on your TV (and VCR) for an unscrambled channel and press ENTER. For a scrambled channel, enter the cable box output channel (usually 2, 3 or 4) and press ENTER.

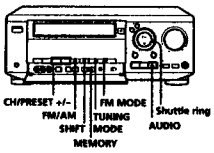


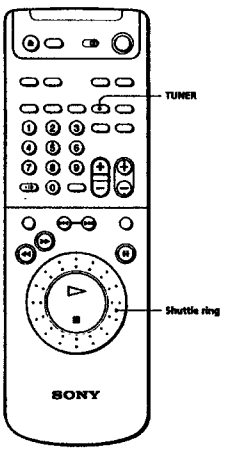
5 Repeat steps 3 and 4 for each channel whose numbers don't match.

6 When you have set all channels, press EXECUTE to confirm your channel settings.

7 When you've finished, press MENU to exit.

Presetting radio stations

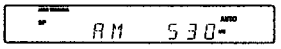




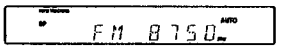
You can preset up to 30 FM or AM stations so that you don't have to tune in the station every time. The preset numbers are combined 3 characters (A, B, C) and numbers (0-9). For example, you can store a station as preset number A1, B6, or C9, etc.

1 Press AUDIO repeatedly until "FM" or "AM" appears (or press TUNER on the remote).

2 Press TUNING MODE repeatedly until "AUTO" appears

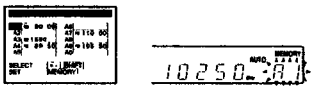


3 Press FM/AM to select "FM" or "AM"



4 Turn the Shuttle ring clockwise or anticlockwise.
Turn it clockwise for a higher station number; turn it anticlockwise for a lower one. The frequency indication changes and scanning stops when the unit tunes in a station.

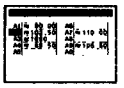
5 Press MEMORY.
The MEMORY menu appears on the TV screen while MEMORY appears in the display window.



6 Press SHIFT to select a character.
Each time you press SHIFT, the character "A", "B" or "C" appears in the display window.

If "MEMORY" disappears, start again from step 3.

7 While MEMORY is displayed, press the CH/PRESET +/– to select the number and press MEMORY.



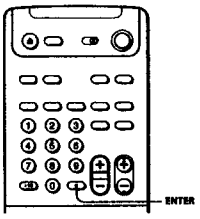
8 Repeat steps 2 through 5 to preset other stations.

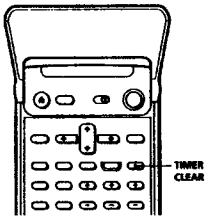
Tips

- If the STEREO indicator remains off, press FM MODE when an FM stereo broadcast is received
- If an FM stereo program is distorted, the STEREO indicator flashes. Press FM MODE to change to monaural (MONO). You will not have the stereo effect but the distortion will be reduced. To return to stereo mode, press this button again.

continued

Presetting radio stations (continued)





To tune in a station with a weak signal

1 Press TUNING MODE repeatedly until "MANUAL" appears in step 2.

2 Press FM/AM to select "FM" or "AM".

3 Turn the Shuttle ring clockwise or anticlockwise until your desired station is tuned in.

To check preset stations

If you don't know which stations are preset on which numbers, you can display the list of preset stations on the TV screen. Press ENTER. Then, press SHIFT while FM/AM TUNER LIST appears.

To change a preset station

Preset a new station on the number you want to change.

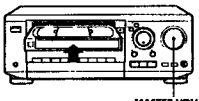
To erase the memory of the preset number

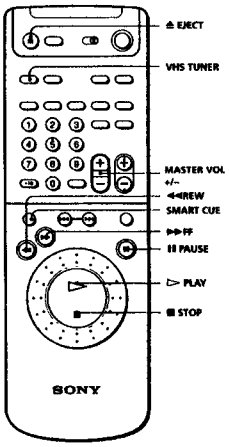
1 Press CH/PRESET +/– to select the preset number you want to erase.

2 Press MEMORY.

3 While MEMORY is displayed, press TIMER CLEAR.

Playing a video tape





Tips

- The unit turns on if you insert a tape while the power is off.
- The counter resets to "0:00:00" whenever a tape is inserted.

Note

- The unit's sound won't be reproduced through the TV unless the speaker connectors or TAPE/MD REC OUT jacks are connected to the TV. Normally, the speakers connected to the unit reproduce the sound.

Before you start...

- Turn MASTER VOLUME to the leftmost position (0) to avoid damaging your speakers.

1 Press VHS TUNER.

- If the TV doesn't turn on, turn it on manually.
- If connected with only the antenna cable, set the TV to the video channel.

2 Insert a video tape.

The unit's VCR starts playing automatically if you insert a tape with its safety tab removed.

3 Press ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

4 Press MASTER VOL +/– on the remote commander to adjust the volume.

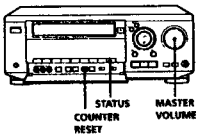
Additional tasks

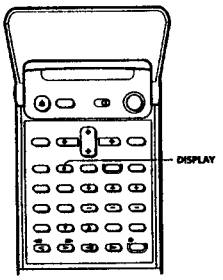
To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Search forward	During playback, press and hold ▶▶ FF. To resume normal playback, release the button.
Search backward	During playback, press and hold ◀◀ REW. To resume normal playback, release the button.
Fast-forward the tape	▶▶ FF during stop
Rewind the tape	◀◀ REW during stop
Eject the tape	⏏ EJECT

To skip playback

You can skip a portion of playback you don't want to watch such as a commercial and restart playback by pressing a single button.
Press SMART CUE during playback of a scene you want to skip. The VCR starts searching.
Press SMART CUE again when you find the scene you want to watch. The VCR stops searching, rewinds a few seconds, then resumes normal playback.

continued



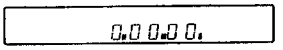


Notes

- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- The counter stops counting when it comes to an unrecorded portion.
- If the muting mark doesn't appear on the TV screen, press DISPLAY.

To use the time counter

At the point on the tape that you want to find later, press COUNTER RESET. The counter in the display window resets to "0:00:00."



To display the time counter on the TV screen, press DISPLAY.

To change the information in the display window

Press STATUS repeatedly.
Each press changes the indication in the following way:

Current time → Counter → Tape remaining time → Operating function → Sound field (See page 49 and 75.)

Regardless of the selected indication, the operational function and selected sound field appears in the display window momentarily. To display only the indication selected with the STATUS button, set INDICATION in the ADVANCED OPTIONS to OFF (see page 89).

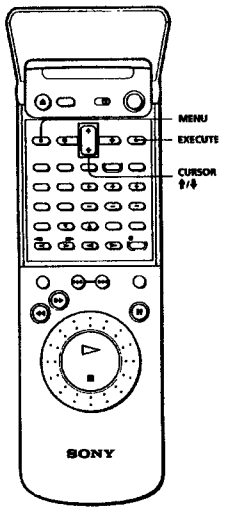
To mute the sound

Press MUTING on the remote commander or unit. The muting mark appears on the TV screen if the on-screen display function is on, and the MASTER VOLUME indicator on the unit flashes.

To restore the sound, press MUTING again.

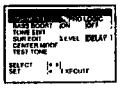
Using the pre-programed sound fields

You can enjoy the surround sound effect by simply selecting one of the pre-programed sound fields according to the type of playback source.



1 Lift the top cover of the remote commander.

While playing any source, press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to SOUND SET, and press EXECUTE.

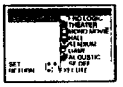


2 Press CURSOR ↑/↓ to move the cursor (I) to SOUND FIELD and press EXECUTE (or CURSOR ➡).

The current sound field mark is highlighted.

3 Press CURSOR ↑/↓ to highlight the most suitable sound field for the playback source.

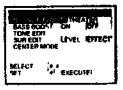
See "Taking advantage of the sound fields" on page 75 for details on selecting a suitable sound field.



4 Press EXECUTE (or CURSOR ⬅).

The customizing menu for the selected sound field appears.

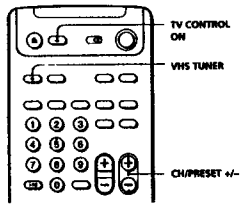
If you want to customize the sound field, see "Customizing the sound fields" on page 78.

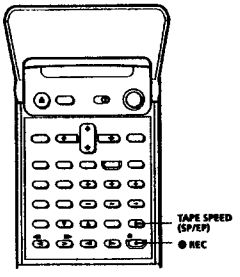


5 Press MENU to return to the original screen.

The selected sound field mark appears on the TV screen if the display function is on (see "To check the remaining tape length" on the next page).

Recording TV programs





Tips

- To select a channel, you can use the number buttons and ENTER on the remote commander.
- You can select a video source (e.g. a DSS receiver, etc.) connected to the LINE IN jacks by pressing VHS LINE repeatedly, until "LINE" is displayed on the TV screen.
- Information about the tape appears on the TV screen, but the information won't be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a cable box, be sure to leave it on.
- You can enjoy watching or listening to another input source even while recording.

Note

- The display does not appear during still (pause) mode or slow-motion playback.

1 Press VHS TUNER.

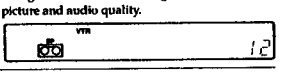
- If the TV doesn't turn on or the LINE 1 is not selected on the TV, turn it on manually.
- If connected with only the antenna cable, set the TV to the video channel.
- To record from a cable box, turn it on.

2 Insert a tape with its safety tab in place.

3 Press CH/PRESET +/– to select the channel you want to record.

4 Lift the top cover of the remote commander and press TAPE SPEED to select the tape speed, SP or EP.

EP provides recording time three times as long as SP, however, SP produces better picture and audio quality.



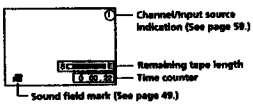
5 Press ● REC to start recording.

To stop recording

Press ■ STOP.

To check the remaining tape length

Press DISPLAY. The display function turns on. The white bar indicates the approximate length of tape remaining.



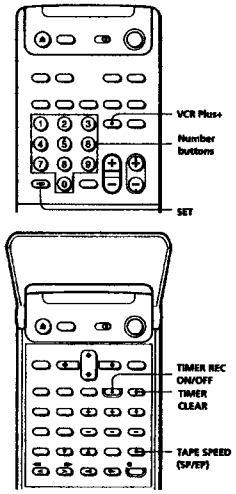
To watch another TV program while recording

1 Press TV/VTR to clear the VTR indicator in the display window.
2 If the TV is connected to the MONITOR VIDEO OUT jacks, set the TV to TV input; if not, skip this step.
3 Press TV CONTROL ON on the remote commander.
4 Select another channel on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on that tape again, cover the tab hole with adhesive tape.

Recording TV programs using VCR Plus+



Tip

- To cancel the procedure, press VCR Plus+ before pressing ENTER.

Note

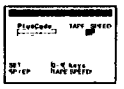
- If the unit's VCR beeps repeatedly, the Plus Code is incorrect.

Just enter the program's Plus Code listed in the TV program guide. The date, times and channel number of that program are set automatically. You can preset up to eight programs at a time.

Before you start...

- Check that the unit's clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Press VHS TUNER.
  - If the TV doesn't turn on or the LINE 1 is not selected on the TV, turn it on manually.
  - If connected with only the antenna cable, set the TV to the video channel manually.
  - When using a cable box, turn it on.

1 Press VCR Plus+.



2 Press the number buttons to enter the program's Plus Code.

If you make a mistake, press TIMER CLEAR and enter the correct number.

3 Lift the top cover of the remote commander, then press TAPE SPEED to select SP or EP.

4 Press CURSOR ⇐/⇒ to select ONCE, DAILY or WEEKLY.

To record	Select
Only once	ONCE
Everyday Monday to Friday	DAILY
Once a week	WEEKLY

continued

Recording TV programs using VCR Plus+ (continued)

Tip

- TIMER REC on the unit has the same function as TIMER REC ON/OFF on the remote commander.

Note

- If you selected any audio input while watching the unit's VCR picture before the unit's VCR enters recording standby, only the picture switches to the TV after you press TIMER REC ON/OFF.

5 Close the top cover of the remote commander, then press SET to confirm.

The date, start and stop times, channel number, and tape speed appear on the TV screen.

If the information is not correct, press TIMER CLEAR to cancel the setting.

6 To enter another setting, repeat steps 1 through 5.

7 Press TIMER REC ON/OFF.

The TIMER indicator appears in the display window and the unit's VCR stands by for timer recording.

The picture switches to the video source. To record from a DSS receiver or other source, leave the connected equipment switched on.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

To record satellite broadcasts

If you connect a DSS receiver and the unit, you can record satellite programs.

1 Turn on the DSS receiver.
2 Press VHS LINE (if the DSS receiver is connected to the unit with the LINE jacks).
3 On the DSS receiver, select the satellite program for which you wish to make a timer setting.
4 Repeat the steps 1 through 7 starting on page 51.
5 Keep the DSS receiver turned on until the unit's VCR finishes the timer recording.

Using the unit after setting the timer

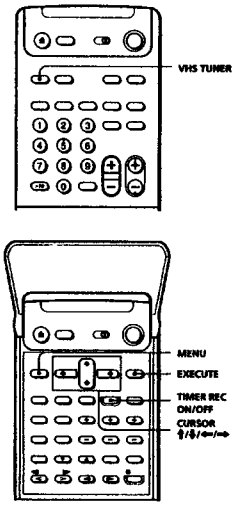
You can use the unit to select and listen to or watch other input sources (see "Audio/Video Equipment Operations" from page 59) during timer recording standby and timer recording.

To use the unit's VCR before a timer recording begins, just press TIMER REC ON/OFF. The TIMER indicator turns off and the unit's VCR switches on. Remember to press TIMER REC ON/OFF again to reset the timer after using the unit's VCR.

You can also do the following VCR related tasks while the unit's VCR is recording:

- Reset the counter
- Display tape information on the TV screen.
- Check the timer settings.

Setting the timer manually



Tip

- To set the channel, you can also use the CH/PRESET +/– or number buttons.

Notes

- "TIMER" flashes in the display window if you press TIMER REC ON/OFF with no tape inserted.
- You can only timer record TV programs from the unit's VCR tuner, or LINE input sources.

If VCR Plus+ is not available in your area, follow the instructions below to set the timer to record programs.

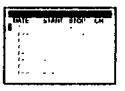
Before you start...

- Check that the unit's clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Press VHS TUNER.
  - If the TV doesn't turn on or the LINE 1 is not selected on the TV, turn it on manually.
  - If connected with only the antenna cable, set the TV to the video channel.
- When using a cable box, turn it on.

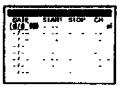
1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to VHS MENU, and press EXECUTE.

2 Press CURSOR ↑/↓ to move the cursor (I) to TIMER SET/CHECK, then press EXECUTE.



3 Set the date, start and stop times, channel number, and tape speed:



1 Press CURSOR ⇒ to highlight each item in turn.
2 Press CURSOR ↑/↓ to set each item.

To correct a setting, press CURSOR ⇐ to return to that setting and reset.

To record the same program every day or on the same day every week, press CURSOR ↓ while the date is highlighted. For details, see "Daily/weekly recording" on the next page.

To record from a DSS receiver or other source connected to the LINE jacks, press CURSOR ↑/↓ in the "CH" column repeatedly to display "LINE."

4 Press CURSOR ⇒ to confirm the setting.

The cursor (I) appears at the beginning of the line. To enter another setting, move the cursor to the next line and repeat step 3.

Note

- If you selected any audio input while watching the unit's VCR picture before the unit's VCR enters recording standby, only the picture switches to the video source after you press TIMER REC ON/OFF.

5 **Press EXECUTE.**

6 **Press TIMER REC ON/OFF.**

The TIMER indicator appears in the display window and the unit's VCR stands by for recording.

The picture and sound switch to the video source.

To record from a DSS receiver or other source, leave the connected equipment switched on.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

Daily/weekly recording

In step 3 above, press CURSOR ↓ in the "DATE" column to select the recording pattern. Each time you press CURSOR ↓, the indication changes as shown below.

the current date → SUN-SAT → MON-SAT → MON-FRI → EVERY SAT .... → EVERY MON → EVERY SUN → 1 month later → (dates count down) → the current date

Using the unit after setting the timer

You can use the unit to select and listen to or watch other input sources (see "Audio/Video Equipment Operations" from page 59) during timer recording standby and timer recording.

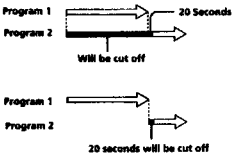
To use the unit's VCR before a timer recording begins, just press TIMER REC ON/OFF. The TIMER indicator turns off and the unit's VCR switches on. Remember to press TIMER REC ON/OFF again to reset the timer after using the unit's VCR.

You can also do the following VCR related tasks while the unit's VCR is recording:

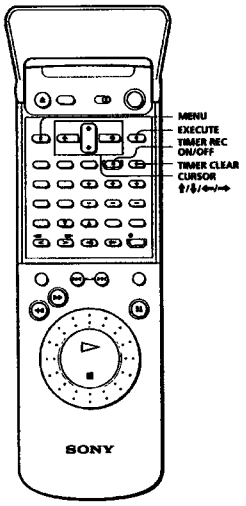
- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.

When the timer settings overlap

The program that starts first has priority and the second program starts recording only after the first program has finished. If the programs start at the same time, the program listed first in the menu has priority.



Checking/changing/ cancelling timer settings



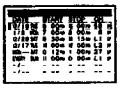
Before you start...

- When the unit is in timer recording standby mode, press TIMER REC ON/OFF to clear the TIMER indicator.
- Press VHS TUNER.
  - If the TV doesn't turn on or the LINE 1 is not selected on the TV, turn it on manually.
  - If connected with only the antenna cable, set the TV to the video channel.

1 **Lift the top cover of the remote commander.**

Press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to VHS MENU, and press EXECUTE.

2 **Press CURSOR ↑/↓ to move the cursor (I) to TIMER SET/CHECK, then press EXECUTE.**



- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press EXECUTE, then press TIMER REC ON/OFF to return to recording standby

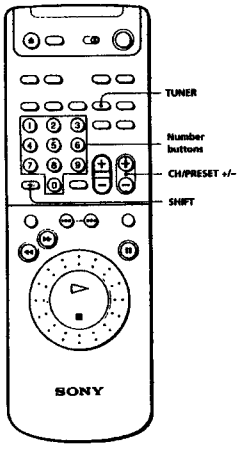
3 **Press CURSOR ↑/↓ to select the setting you want to change or cancel:**

- To change the setting, press CURSOR ←/→ to highlight the item you want to change, then press CURSOR ↑/↓ to reset it.
  Then, press CURSOR → repeatedly until the cursor (I) appears at the beginning of the line.
- To cancel the setting, press TIMER CLEAR.

4 **Press EXECUTE.**

If any settings remain, press TIMER REC ON/OFF to return to recording standby.

Listening to the radio



Listening to preset radio stations

Before using this function, preset radio stations in the tuner's memory (see "Presetting radio stations" on page 45.)

1 Press AUDIO repeatedly until "FM" or "AM" appears (or press TUNER on the remote).

2 Press SHIFT repeatedly to select A, B, or C, then press the number
For example, select A and press 7 to tune in the station preset as A7.

To scan the preset stations

Press CH/PRESET +/– . Each press changes the preset number as follows:

A1 ↔ A2 ↔ ... ↔ A0 ↔ B1 ↔ B2 ↔ ... ↔ B0 ↔ C1 ↔ C2 ↔ ... ↔ C0

You can select only the preset number.
Press and hold this button to keep changing the preset numbers.

To listen to non-preset radio stations

1 Press AUDIO repeatedly until "FM" or "AM" appears (or press TUNER on the remote.)

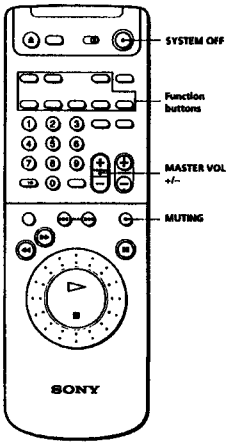
2 Press TUNING MODE repeatedly until "MANUAL" appears.

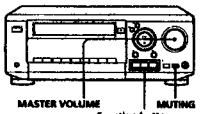
3 Press FM/AM to select "FM" or "AM".

4 Turn the Shuttle ring clockwise or anticlockwise until your desired station is tuned in

Audio/Video Equipment Operations

Selecting the equipment





You can control the connected audio and video equipment with this remote commander. Before operating any equipment, press the function button corresponding to the equipment. Note that all equipment must be made by Sony to control with the remote commander

Controlling the function buttons

The function buttons of the remote commander have the following three roles.

- Turning on the unit and related piece of equipment (excluding audio components).
- Switching the input source.
- Switching the remote commander to operate the selected equipment (see the sections for controlling each piece of equipment from page 62 to 74).

To change the input source, you can also use the function buttons on the unit

The following tables show the relationship between the function buttons (on the remote commander and unit) and the input source.

Function buttons on the remote commander (SYSTEM CONTROL/ FUNCTION)

Press	The following indication appears on the TV screen	And the unit's input switches to the
VHS TUNER	channel number	Unit's VCR
VHS LINE	LINE	LINE (VIDEO IN, AUDIO L/R IN) jacks
VIDEO1	VIDEO1	VIDEO1 (VIDEO IN, AUDIO L/R IN) jacks
VIDEO2	VIDEO2	VIDEO2 INPUT (VIDEO, AUDIO L/R) jacks
TV*1	(TV)*2	TV (VIDEO, AUDIO L/R IN) jacks
CD	CD	CD (AUDIO L/R IN) jacks
TUNER	TUNER	Unit's FM/AM tuner
TAPE/MD	TAPE/MD	TAPE/MD (AUDIO L/R IN) jacks

*1 If the TV is connected to the unit with only the antenna cable, the unit's speakers do not reproduce the sound even if you press this button. When you use the TV tuner, press TV CONTROL ON (see "Controlling other TVs with the remote commander" on page 65).

*2 "TV" usually doesn't appear on the TV screen. If another monitor is connected to the MONITOR VIDEO OUT jack, "TV" appears on the monitor screen.

Selecting the equipment (continued)

Function buttons on the unit (FUNCTION)

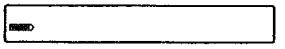
Press the following button repeatedly	Until the following indication appears on the TV screen	Then the unit's input switches to the
VHS	Channel number	Unit's VCR
	LINE	LINE (VIDEO IN, AUDIO L/R IN) jacks
VIDEO*1	(TV)*2	TV (VIDEO IN, AUDIO L/R IN) jacks
	VIDEO1	VIDEO1 (VIDEO IN, AUDIO L/R IN) jacks
	VIDEO2	VIDEO2 INPUT (VIDEO, AUDIO L/R) jacks
AUDIO	TUNER	Unit's FM/AM tuner
	CD	CD (AUDIO L/R IN) jacks
	TAPE/MD	TAPE/MD (AUDIO L/R IN) jacks

*1 If the TV is connected to the unit with only the antenna cable, the unit's speakers do not reproduce the sound even if you select the TV with this button. When you use the TV tuner, press TV CONTROL ON (see "Controlling other TVs with the remote commander" on page 65)

*2 "TV" usually doesn't appear on the TV screen. If another monitor is connected to the MONITOR VIDEO OUT jack, "TV" appears on the monitor screen

Watching a picture while listening to audio equipment

If you change the input from a video source to an audio source, the sound will be switched to the audio source but the picture continues to be output. The last selected video source's indicator remains lit in the display window.



Note

- When the TV is selected, no picture appears in the display window.

Before operating audio/video equipment

- Connect all the components securely and correctly as indicated on pages 6 through 10.
- Turn MASTER VOLUME to the leftmost position (0) to avoid damaging the speakers.
- Note that you may not be able to control all the functions of the equipment described in these Operating Instructions with the remote commander. In this case, refer to the operating instructions of each piece of equipment.
  If there is any function you cannot control with the remote commander, use the remote control of each piece of equipment.

Using the operations common to all equipment

To increase or decrease the volume

Press MASTER VOL +/– on the remote commander, or turn MASTER VOLUME on the unit clockwise or anticlockwise.

To mute the sound

Press MUTING. To restore the sound, press it again.

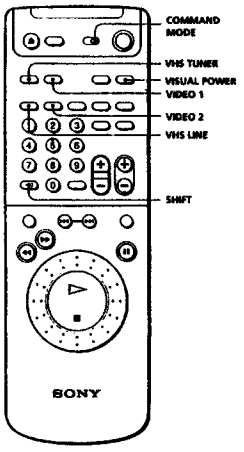
To turn off the whole system

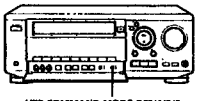
Press SYSTEM OFF.

Note

- You cannot turn off the power of the non-Sony TVs.

Controlling VCRs





Controlling VCRs which have the COMMAND MODE selector

To control a VCR with the remote commander, set the COMMAND MODE selectors on the remote commander and the VCR to the same position. The COMMAND MODE*1 selectors on both the unit and remote commanders are factory set to VTR3. Be sure to set the COMMAND MODE selector on each VCR to a different position to operate each VCR independently.
If the COMMAND MODE selector on a VCR is set to OFF, you cannot control that VCR with the remote commander.
If the COMMAND MODE selector on this unit is set to OFF, although you cannot control the unit's VCR with the remote commander, MASTER VOL +/–, MUTING, and the function buttons on the remote commander can operate the unit

*1 The selector's name on the unit is VTR COMMAND MODE, however, it is described as COMMAND MODE in these Operating Instructions for the sake of convenience.

Controlling a VCR which doesn't have a COMMAND MODE selector

If a VCR has no COMMAND MODE selector, set COMMAND MODE on the remote commander in the following way.

If your VCR is a	Set COMMAND MODE to
Sony Betamax format VCR	VTR1
Sony 8mm format VCR	VTR2
Sony VHS format VCR	VTR3

If you have another VHS format VCR, set COMMAND MODE on the unit to VTR1 or VTR2.

Turning on and controlling the unit's VCR

1 Set COMMAND MODE on the remote commander to the same position as COMMAND MODE on the unit.

2 Press VHS TUNER.
- If the TV doesn't turn on or the LINE 1 is not selected on the TV, turn it on manually.
- If connected with only the antenna cable, set the TV to the video channel.

Turning on and controlling another VCR

1 Set COMMAND MODE on the remote commander to the same position as COMMAND MODE on the other VCR.

If the other VCR doesn't have a COMMAND MODE selector, set COMMAND MODE on the remote commander according to the table in "Controlling a VCR which has no COMMAND MODE selector" on the previous page.

2 Press VIDEO1, VIDEO2, or VHS LINE depending on which jacks the other VCR is connected to.

The other VCR and TV turn on, and the corresponding input source is selected.

Customizing the remote commander to make controlling other VCRs easier

Initially VIDEO1 and VIDEO2 only select the input source, and COMMAND MODE on the remote commander determines which VCR you can control with the remote commander.
However, you can customize VIDEO1 and VIDEO2 on the remote commander to control the other VCR.
While pressing either VIDEO1 or VIDEO2,

- press number button 7 to control the VCR with its COMMAND MODE selector set to VTR1, or Betamax format VCR;
- press number button 8 to control the VCR with its COMMAND MODE selector set to VTR2, or 8mm format VCR; or,
- press number button 9 to control the VCR with its COMMAND MODE selector set to VTR3, or VHS format VCR.

The customized button is no longer related to the COMMAND MODE position. To turn on and control the other VCR with the remote commander, simply press the customized VIDEO1 or VIDEO2 button.

Note
- You cannot do this customizing for VHS TUNER or VHS LINE. These buttons are always related to the COMMAND MODE position

To relate VIDEO1 or VIDEO2 with COMMAND MODE again

While pressing VIDEO1 or VIDEO2, press SHIFT

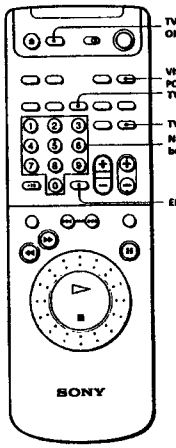
Using the remote commander buttons to control the other VCR

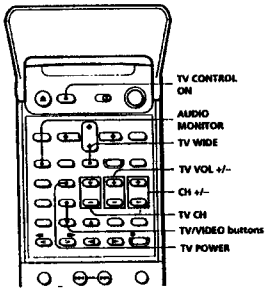
You can control the other VCR with the same buttons you use to control this unit's VCR. Note that the VCR Plus+, DISPLAY, MENU, CURSOR ↑/↓/←/→, TIMER REC ON/OFF, and TIMER CLEAR buttons, and the CLICK SHUTTLE ring don't operate other VCRs.

Turning off the selected VCR

Press VISUAL POWER while the remote commander is in the selected VCR operation mode.

Controlling the TV





Note
- You cannot use the on-screen display while the unit is in TV control mode

Watching a TV program

1 Press TV.

The TV and unit turn on.

2 Press the number buttons to select the channel and press ENTER.

To scan through channel, lift the top cover of the remote commander, then press CH +/–.

Selecting a stereo or bilingual program

Press AUDIO MONITOR. Each press changes the sound between bilingual and stereo

Using the WIDE function

Press TV WIDE. Each press changes the WIDE mode.

Controlling other TVs with the remote commander

The remote commander is preprogramed to control non-Sony TVs. If your TV is listed in the table below, set the appropriate manufacturer's code number.

Hold down TV CONTROL ON, and enter your TV's code number(s) using the number buttons. Then release TV CONTROL ON

Now you can use the TV POWER, TV VOL +/–, TV CH +/– and TV/VIDEO buttons to control your TV.

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

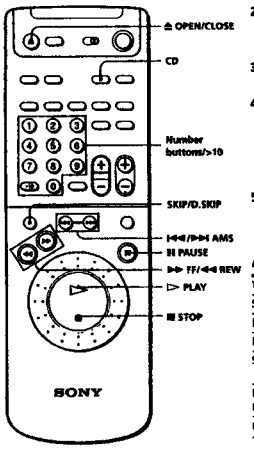
Manufacturer	Code number
Sony	01
Akai	04
AOC	04
Centurion	12
Coronado	03
Curis-Mathes	12
Daytron	12
Fisher	11
General Electric	06,10
Hitachi	02,03
J C Penny	04,12
JVC	09

Manufacturer	Code number
KMC	03
Magnavox	03,08,12
Marantz	04,13
MGA/Mitsubishi	04,12,13,17
NEC	04,12
Panasonic	06,19
Philco	03,04
Philips	08
Pioneer	16
Portland	03
Quasar	06,18
Radio Shack	05,14

Manufacturer	Code number
RCA	04,10
Sampo	12
Sanyo	11
Scott	12
Sears	07,10,11
Sharp	03,05,18
Sylvania	08,12
Teknika	03,08,14
Toshiba	07
Wards	03,04,12
Yorx	12
Zenith	15

Notes
- If the TV uses a different remote control system from the one programed to work with the VCR, you cannot control your TV with the remote commander.
- If you enter a new code number, the code number previously entered will be erased
- When you replace the batteries of the remote commander, the code number automatically resets to 1 (Sony) Reset the appropriate code number

Playing back a CD



1 Press CD and turn on the CD player.

The unit turns on and switches the input source to the CD player connected to the CD jacks

2 Press ≜ OPEN/CLOSE to open the disc tray.

If the disc tray or cover doesn't open, refer to your CD player's operating instructions.

3 Load a CD or CDs referring to your CD player's operating instructions.

4 Press ≜ OPEN/CLOSE to close the disc tray.

If the disc tray or cover doesn't close, refer to your CD player's operating instructions.

Depending on the CD player, you can skip this step. Refer to your CD player's operating instructions.

5 Press ▷ PLAY.

Depending on the CD player, you can skip this step. Refer to your CD player's operating instructions.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Scan forward or backward	And hold ▶▶ FF or ◀◀ REW during playback
Locate the beginning of other tracks	I◀◀ /▶▶I AMS repeatedly
(Stop and) remove the CD This function doesn't operate some CD players	≜ OPEN/CLOSE
Close the tray This function doesn't operate some CD players.	≜ OPEN/CLOSE
Select other discs This function only works for CD players with a built-in multi-disc changer.	SKIP/D.SKIP repeatedly during playback or before playback

To locate a track with the number buttons

Press one of the number buttons for single digit track numbers (except 0).

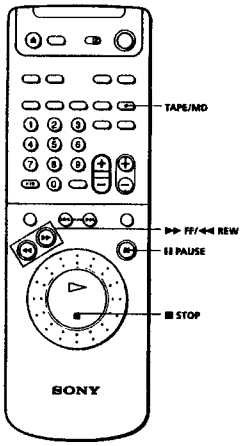
To locate the 10th track, press 1, then 0.

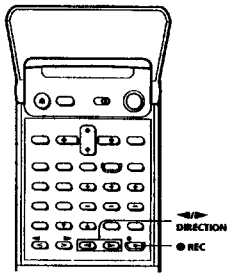
To enter a track number over 10, first press >10, then any number button for the tens digit except 0, and the number button for the ones digit.

Examples of entering the two-digit number

To	Press
Enter 30	>10, then 3, and 0
Enter 24	>10, then 2, and 4

Controlling a cassette deck





The remote commander's TAPE/MD button is factory set to work for single-cassette decks or deck B if you have a double-cassette deck. If you want the remote commander operate deck A, you need to customize your remote commander. See "Customizing the remote commander for deck A of a double-cassette deck" on the next page.

Playing a tape

1 Press TAPE/MD, and turn on the cassette deck.

The unit turns on and switches the input source to the cassette deck connected to the TAPE/MD jacks.

2 Insert a recorded cassette (into deck B for double-cassette decks) referring to your cassette deck's operating instructions.

3 Lift the top cover of the remote commander and press ▶ DIRECTION.

For reverse side playback, lift the top cover of the remote commander and press ◀ DIRECTION.

Additional tasks

To	Press
Stop play	■ STOP
Pause play This function doesn't operate some cassette decks.	II PAUSE
Resume play after pause	▶ DIRECTION, ◀ DIRECTION, or II PAUSE
Fast-forward	▶▶ FF
Rewind	◀◀ REW

Recording on a tape

1 Press TAPE/MD, and turn on the cassette deck.

The unit turns on and switches the input source to the cassette deck connected to the TAPE/MD jacks.

2 Insert a blank cassette with its erasure prevention tabs in place (into deck B for a double-cassette deck) referring to your cassette deck's operating instructions.

3 Select the input source by pressing one of the function buttons on the unit.

If you want to select the unit's VCR or piece of equipment connected the LINE jacks, press VHS repeatedly to display a channel or "LINE" on the TV screen.

If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.

continued

Controlling a cassette deck (continued)

4 Lift the top cover of the remote commander and press ● REC to set the cassette deck to recording pause.

5 Press ▶ DIRECTION (or ◀ DIRECTION to record on the reverse side).

Recording starts.

6 Play back the program source

Additional tasks

To	Press
Stop recording	■ STOP
Pause recording	II PAUSE
Resume recording	II PAUSE, ▶ DIRECTION, or ◀ DIRECTION

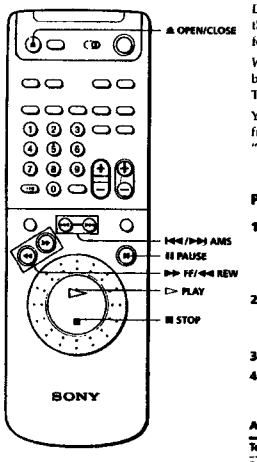
Customizing the remote commander for deck A of a double-cassette deck

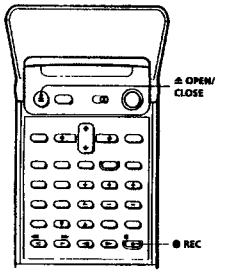
The remote commander's TAPE/MD button is factory set to operate single-cassette decks or deck B if you have a double-cassette deck. To control deck A, first you need to customize one of the function buttons for deck A.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. While pressing the selected function button, press the number button 5. (You must select the function button corresponding to the input jacks the cassette deck is connected to.)
Now that function button operates deck A. To change the button's function again, see "Customizing the remote commander function buttons" on page 91.

To play back a tape, follow the instructions in "Playing a tape" on the previous page. During the procedure, press the function button you customized for deck A in step 1 instead of TAPE/MD, and insert a recorded cassette into deck A in step 2 instead of deck B.

Controlling a DAT deck





Customizing the remote commander for a DAT deck

The remote commander is not factory set to control DAT decks. So you need to customize the function button corresponding to the jacks the DAT deck is connected to. For example, if you connect the DAT deck to the TAPE/MD jacks, customize TAPE/MD for the DAT deck in the following way.

While pressing the function button (e.g. TAPE/MD), press number button 2.
The function button is customized to control the DAT deck

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 91.

Playing a tape

1 Press the function button you customized for the DAT deck, and turn on the DAT deck.

The unit turns on and switches the input source to the jacks the DAT deck is connected to.

2 Press ≙ OPEN/CLOSE to open the cassette cover/holder.

If the cassette cover/holder doesn't open, refer to your DAT deck's operating instructions.

3 Insert a cassette.

4 Press ▷ PLAY.

The deck starts playing a tape.

Additional tasks

To	Press
Stop playing	■ STOP
Go to the next track	▶▶I AMS
Go to the preceding track	I◀◀ AMS
Fast-forward or rewind	▶▶ FF or ◀◀ REW during stop
Monitor the sound during fast-forward or rewind	▶▶ FF or ◀◀ REW during playback To resume normal playback, release the button.
Eject the cassette	≙ OPEN/CLOSE during stop

continued

Controlling a DAT deck (continued)

Note

• You must connect the DAT deck to the TAPE/MD jacks to record on a tape with the DAT deck

Recording on a tape

1 Press the function button you customized for the DAT deck, and turn on the DAT deck.

The unit turns on and switches the input source to the TAPE/MD jacks the DAT deck is connected to.

2 Insert a cassette with the record-protect tab closed.

3 Select an input source by pressing one of the function buttons on the unit

If you want to select the unit's VCR or piece of equipment connected the LINE jacks, press VHS repeatedly to display a program position or "LINE" on the TV screen.

If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.

4 Locate the point you want to start recording from

To record from the beginning of the tape, press ◀◀ REW to rewind the tape to the beginning.

To record from the end of the recorded portion, press ▶▶ FF.

The deck locates the end of the recorded portion on the tape and stops automatically.

5 Lift the top cover of the remote commander and press ● REC to set the MD deck to recording pause.

6 Press ▷ PLAY or II PAUSE

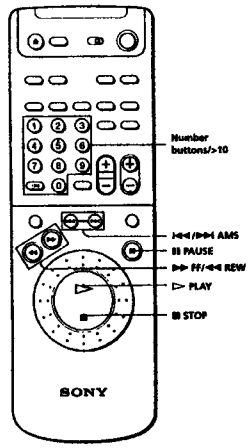
Recording starts.

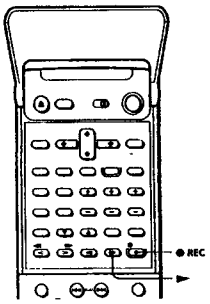
7 Play back the program source.

Additional tasks

To	Press
Stop recording	■ STOP
Pause recording	II PAUSE To resume recording, press the button again
Resume recording	II PAUSE or ▷ PLAY

Controlling an MD deck





Customizing the remote commander for an MD deck

The remote commander is not factory set to control MD decks. So you need to customize the function button corresponding to the jacks the MD deck is connected to. For example, if you connect the MD deck to the TAPE/MD jacks, customize TAPE/MD for the MD deck in the following way.

While pressing the function button (e.g. TAPE/MD), press number button 3.
The function button is customized to control the MD deck.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 91.

Playing an MD

1 Press the function button you customized for the MD deck, and turn on the MD deck.

The unit turns on and switches the input source to the jacks the MD deck is connected to.

2 Insert an MD referring to your MD deck's operating instructions.

3 Press ▷ PLAY

The MD deck starts playing.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Scan forward or backward	And hold ►► FF or ◄◄ REW during playback
Locate the beginning of other tracks	I◄◄ / ►►I AMS repeatedly

To locate a track with the number buttons

Press one of the number buttons for single digit numbers (except 0). To locate the 10th track, press 1, then 0.
To enter a track number over 10, first press >10, then any number button for the tens digit except 0, and the number button for the ones digit.

Examples of entering the two-digit number

To	Press
Enter 30	>10, then 3, and 0
Enter 24	>10, then 2, and 4

continued

Controlling an MD deck (continued)

Note

- You must connect the MD deck to the TAPE/MD jacks to record on an MD with the MD deck.

Recording on an MD

1 Press the function button you have customized for the MD deck, and turn on the MD deck.

The unit turns on and switches the input source to the TAPE/MD jacks the MD deck is connected to.

2 Insert an MD with its erasure prevention tab closed, referring to your MD deck's operating instructions.

3 Select the input source by pressing one of the function buttons on the unit.

If you want to select the unit's VCR or piece of equipment connected to the LINE jacks, press VHS repeatedly to display a program position or "LINE" on the TV screen.

If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.

4 Lift the top cover of the remote commander and press ● REC to set the MD deck to recording pause.

5 Press ► (or ▷ PLAY)

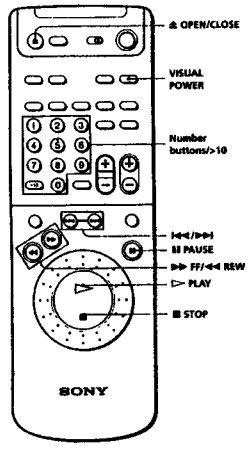
Recording starts.

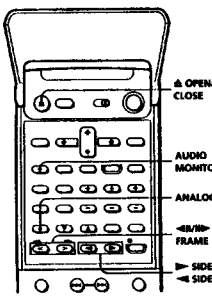
6 Play back the program source

Additional tasks

To	Press
Stop recording	■ STOP
Pause recording	II PAUSE. Press the button again to resume recording.
Resume recording	II PAUSE or ▷ PLAY

Controlling an LD player





Customizing the remote commander for an LD player

The remote commander is not factory set to control LD players. So you need to customize the function button corresponding to the jacks the LD player is connected to. For example, if you connect the LD player to the VIDEO 1 jacks, customize VIDEO1 for the LD player in the following way.

While pressing the function button (e.g. VIDEO1), press number button 6.
The function button is customized to control the LD player.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 91.

Playing back an LD

1 Press the function button you customized for the LD player, and turn on the LD player.

The unit turns on and switches the input source to the jacks the LD player is connected to.

2 Press ⏏ OPEN/CLOSE to open the disc tray.

3 Place an LD on the disc tray.

4 Press ▷ PLAY.

The disc tray closes and side A of the LD starts playing.

When playback of side A ends, side B starts playing automatically.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Scan forward or backward	And hold ►► FF or ◄◄ REW during playback
Skip chapters or tracks	I◄◄ / ►►I repeatedly
(Stop and) remove the LD	⏏ OPEN/CLOSE
Close the tray	⏏ OPEN/CLOSE

To start playback from the beginning of either LD side

Press ► SIDE A to play side A of the LD from the beginning.
Press ◄ SIDE B to play side B of the LD from the beginning.

To pause playing just before starting

Press II PAUSE instead of ▷ PLAY after you place an LD on the disc tray.
The disc tray closes and the player waits at the start of the LD until you press ▷ PLAY or II PAUSE. If you want to start from side B, press ◄ SIDE B after you press II PAUSE.

continued

Controlling an LD player (continued)

To locate a particular chapter or track

Press any number button to enter the single digit chapter/track number (except 0).
For two-digit numbers, press >10 repeatedly to enter the tens digit (the number of times you press the button becomes the tens digit number). Then press any number button to enter the ones digit.

Examples of entering a two-digit number

To	Press
Enter 30	>10 three times, then press 0
Enter 14	>10 once, then press 4

To play a chapter or track on the opposite side of the LD, press ◄ SIDE B while playing SIDE A (or ► SIDE A while playing SIDE B), then enter the chapter or track number.

To play frame-by-frame (Step Play)

Press ◄II/II► FRAME repeatedly. Each press shifts the picture to the next frame.
For continuous frame playback, press and hold ◄II/II► FRAME.
To resume normal playback, press ▷ PLAY.

To listen to analog sound from an LD

If your LD contains digital sound tracks, the player automatically outputs digital sound. To listen to the sound recorded on analog soundtracks, press ANALOG/□■. To resume the digital mode, press ANALOG/□■ again.

To play a stereo disc or Second Audio Programme (SAP) disc

When playing SAP discs such as bilingual discs, you can alternate the sound output by pressing AUDIO MONITOR. Each press changes the sound as follows.

Stereo disc	SAP disc
Left channel	Sound track 1 (Left channel)
Right channel	Sound track 2 (Right channel)
Stereo (Both channels)	Both tracks (Left and right channels)

To play an LD with the □■ (CX) logo

LDs with the □■ logo are recorded with the CX noise reduction system for analog sound. Although LD players usually detect and activate this system, you can manually set the LD player to use the system.

Press ANALOG/□■.

To cancel this function, press ANALOG/□■ again.

Turning off the LD player

Press VISUAL POWER while the remote commander is in LD control mode.

Sound Field Operations

Taking advantage of the sound fields

You can enjoy the surround sound effect by simply selecting one of the pre-programed sound fields according to the type of playback source.

1 Select the input source.

2 Select the sound field. (See "Using the pre-programed sound fields" on page 49.)

You can set the sound effect independently for each input source.

Selecting the sound field

Select	To	You need the following speakers
PROLOGIC	Fully enjoy programs processed with Dolby Pro Logic Surround sound (See "What's Dolby Surround and Dolby Pro Logic Surround?" on the next page)	See "Selecting the center mode" on page 32
THEATER	Add the acoustic reflections of a theater to the decoded Dolby Surround signals (See "What's Dolby Surround and Dolby Pro Logic Surround?" on the next page.)	See "Selecting the center mode" on page 32.
MONO MOVIE	Create a theater-like environment for movies with monaural soundtracks (See "What's surround sound?" on the next page)	The surround (rear left and right) speakers as well as the front left and right speakers
HALL	Reproduce the acoustics of a hall (See "What's surround sound?" on the next page)	The surround (rear left and right) speakers as well as the front left and right speakers
STADIUM	Reproduce the feeling of a large open-air stadium (See "What's surround sound?" on the next page)	The surround (rear left and right) speakers as well as the front left and right speakers
GAME	Obtain maximum audio impact from video game software (See "What's surround sound?" on the next page)	The surround (rear left and right) speakers as well as the front left and right speakers
ACOUSTIC	Reproduce normal 2 channel stereo	Only the front left and right speakers
OFF	Turn off the sound effect	Only the front left and right speakers

To temporarily turn off the sound effect you set

1 Select the input source for the sound effect you want to turn off.

2 Press SURROUND on the unit to turn off the sound effect.

To resume the previous sound effect, press SURROUND again.

continued

Taking advantage of the sound fields (continued)

What's Dolby Surround and Dolby Pro Logic Surround?

Dolby Surround is a system that decodes the extra channels of Dolby Surround encoded sound tracks on movie videos and TV programs, and produces sound effects and echoes that make the action seem to envelop you

Dolby Pro Logic Surround is a more advanced system developed after Dolby Surround. The sound image is improved by using four separate channels: off-screen audio effects, on-screen dialogue, left-to-right panning, and music. These channels manipulate the sound and enhance the action as it happens on the screen.

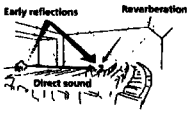
The unit offers PROLOGIC mode for these systems as one of the sound fields. You can tell if a video tape or laser disc uses Dolby Surround or Dolby Pro Logic Surround encoded software by looking at the packaging. (Some video tapes and laser discs may use Dolby Surround even if it's not indicated on the package.)

What's surround sound?

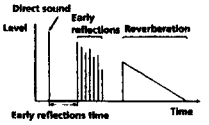
Surround sound consists of three elements, direct sound, early reflected sound (early reflections), and reverberated sound (reverberation). The acoustics of the venue affect the way these three sound elements are heard.

The unit combines the three sound elements in such a way that you can actually feel the size and type of a particular venue such as a concert hall. The unit also varies the combination of the sound elements to offer you a variety of sound fields (THEATER, MONO MOVIE, HALL, STADIUM, and GAME).

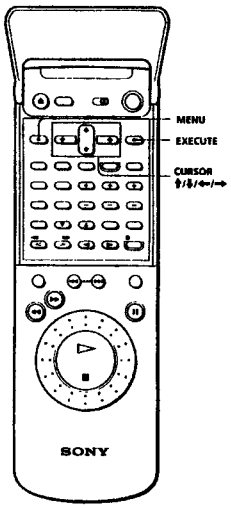
The three sound elements in an actual concert hall



Transition of sound from rear speakers



Getting the most out of Dolby Pro Logic Surround sound



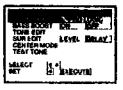
To obtain the best possible Dolby Pro Logic Surround sound, you need to adjust the delay time. The center mode and speaker levels were set in EASY SET UP, so you don't have to change those settings unless you change the speaker configuration.

If you change the speaker configuration, see "Reconfiguring the PROLOGIC and THEATER sound fields" on page 82.

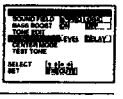
Adjusting the delay time

You can make the surround sound more effective by delaying the output from the rear speakers (delay time) relative to the front speakers. You don't have to adjust the delay time if you select 3CH LOGIC for CENTER MODE.

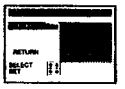
1 Repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select PROLOGIC in step 3.



2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight DELAY.



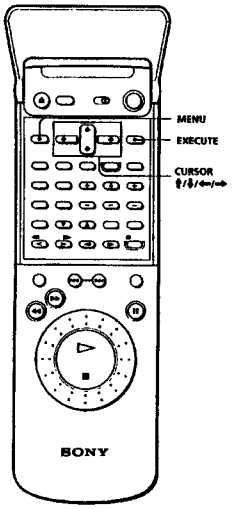
3 Press EXECUTE, then press CURSOR ←/→ to select 15ms, 20ms, 25ms, or 30ms as the delay time.



Make the delay time longer when you have placed the rear speakers in a small room or close to your listening position, and make it shorter when you have placed them in a large room or far from your listening position.

4 Press MENU to return to the original screen.

Customizing the sound fields



Tips

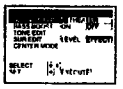
- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit.
- To restore the factory settings of the sound fields, turn on the unit while pressing SURROUND

Each sound field is composed of an equalizer (bass, midrange, and treble) and surround sound parameters: sound variables that create the sound image. You can customize the sound fields by adjusting the speaker levels, effects, and surround sound parameters to suit your listening situation.

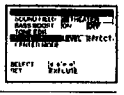
Once you customize the sound fields, they are stored in memory

Adjusting the speaker level for THEATER, MONO MOVIE, HALL, STADIUM, or GAME

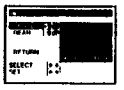
1 Start playing a program source, then repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select one of the above sound fields in step 3.



2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight LEVEL.



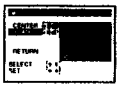
3 Press EXECUTE. Then, press CURSOR ↑/↓ to move the cursor to CENTER, and press CURSOR ←/→ to increase or decrease the volume of the center speaker to a preferable level.



If you select MONO MOVIE, HALL, STADIUM, or GAME in step 1, skip this step.

If you select THEATER in step 1, and you set the center mode to PHANTOM (see "Selecting the center mode" on page 32), skip this step.

4 Press CURSOR ↑/↓ to move the cursor (I) to REAR, then press CURSOR ←/→ to increase or decrease the volume of the rear speakers to a preferable level.



If you select THEATER in step 1 and 3CH LOGIC is selected as the center mode (see "Selecting the center mode" on page 32), skip this step.

The rear speakers' volume balance is always even.

5 Press MENU to return to the original screen.

To return to the previous menu

Select RETURN instead of pressing MENU in step 5, then press EXECUTE.

Adjusting the tone for all sound fields

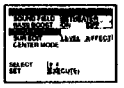
Adjust the tone of the front, center and rear speakers for optimum sound. You can adjust the tone for all sounds fields, including PROLOGIC.

Note

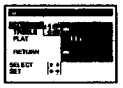
- When SF OFF is selected, the tone cannot be adjusted.

1 **Start playing a program source, then repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select one of the sound fields in step 3.**

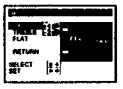
2 **Press CURSOR ↑/↓ to move the cursor (!) to TONE EDIT.**



3 **Press EXECUTE. Then, press CURSOR ↑/↓ to move the cursor (!) to BASS, and press CURSOR ←/→ to adjust the level of the low frequencies as you like.**



4 **Press CURSOR ↑/↓ to move the cursor (!) to TREBLE, then press CURSOR ←/→ to adjust the level of the high frequencies as you like.**



5 **Press MENU to return to the original screen.**

To return to the previous menu

Select RETURN instead of pressing MENU in step 5, then press EXECUTE

To start your adjustment from a flat equalizer curve

Select FLAT after pressing EXECUTE in step 3 above, then adjust BASS and TREBLE.

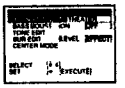
continued

Customizing the sound fields (continued)

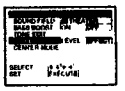
Adjusting the effect level for THEATER, MONO MOVIE, HALL, STADIUM, or GAME

You can adjust the influence of the sound field to the level you like

1 **Start playing a program source, then repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select one of the above sound fields in step 3.**

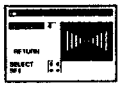


2 **Press CURSOR ↑/↓/←/→ to move the cursor (!) to SUR EDIT, then highlight EFFECT.**



3 **Press EXECUTE, then press CURSOR ↑/↓ to select 1, 2, 3, or 4 as the effect level.**

If you select THEATER in step 1, and you set the center mode to PHANTOM (see "Selecting the center mode" on page 32), skip this step.



4 **Press MENU to return to the original screen.**

To return to the previous menu

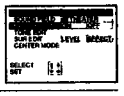
Select RETURN in stead of pressing MENU in step 4, then press EXECUTE.

Reinforcing the bass sound for all sound fields

In addition to the other sound effects, you can reinforce the bass sound for all sounds fields including PROLOGIC.

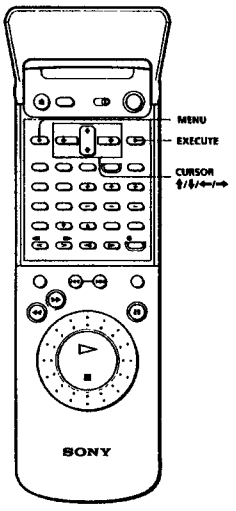
1 **Start playing a program source, then repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select one of the sound fields in step 3.**

2 **Press CURSOR ↑/↓/←/→ to move the cursor (!) to BASS BOOST, then highlight ON.**



3 **Press MENU to return to the original screen.**

Reconfiguring the PROLOGIC and THEATER sound fields

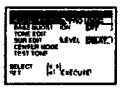


Tip

- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit

If you change your speaker configuration, you need to readjust the center mode and speaker levels for the PROLOGIC and THEATER sound fields.

1 **Repeat steps 1 through 4 in "Using the pre-programed sound fields" on page 49 and select PROLOGIC or THEATRE in step 3.**

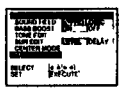


2 **Press CURSOR ↑/↓ to move the cursor (!) to CENTER MODE, then press EXECUTE.**

3 **Press CURSOR ←/→ to select the center mode, then press CURSOR ↓ to highlight RETURN.**

See "Selecting the center mode" on page 32.

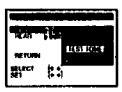
4 **Press EXECUTE, then press CURSOR ↑/↓ to highlight TEST TONE.**



5 **Press EXECUTE.**

Each speaker emits the test tone in turn (the speaker emitting the test tone is indicated by the red speaker mark).

Check each speaker's relative volume balance with the test tones



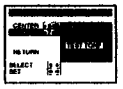
6 **Press CURSOR ←/→ to increase or decrease the volume of the center speaker.**

If you selected PHANTOM in step 3, skip this step.

For PROLOGIC sound, you should have an equal volume balance with the other speakers at your listening position.

For THEATER sound, you can adjust the speaker level as you like.

7 **Press CURSOR ↑/↓ to move the cursor (I) to REAR, then press CURSOR ←/→ to increase or decrease the volume of the rear speakers.**



If you selected 3CH LOGIC in step 3, skip this step.

For PROLOGIC sound, you should have an equal volume balance with the other speakers at your listening position.

For THEATER sound, you can adjust the speaker level as you like.

The surround speakers' volume balance is always even.

8 **Press MENU to return to the original screen.**

Adjusting the speaker level by listening to the program source

1 Start playing a program source, then repeat step 1 through 4 in "Using the pre-programmed sound fields" on page 49 and select PROLOGIC or THEATER in step 3.
2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight LEVEL.
3 Repeat steps 5 through 8 on the previous page.

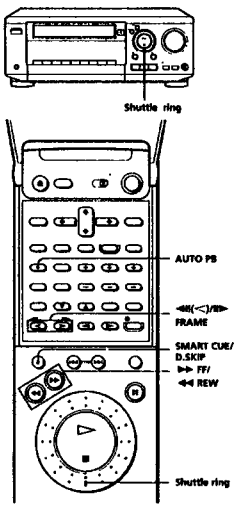
Increasing the maximum rear speaker level

Although the adjustment range of the rear speakers is preset from –15 to +10 dB, you can shift the range up 5 dB (–10 to +15 dB). Hold down MUTING on the unit while turning on the power. "GAIN UP" appears in the display window.

The values for the rear level remain fixed at –15 to +10 dB on the menu, but you will be able to hear the difference in the actual output level.

To reset the rear level adjustment range, repeat this procedure so "GAIN NOR" appears in the display window.

Playing/searching at various speeds



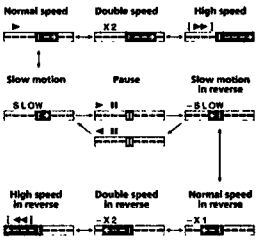
Tip
- Adjust the picture using ▼/▲ STILL ADJUST if
  - Streaks appear while playing in slow motion.
  - Bands appear at the top or bottom while pausing
  - The picture shakes while pausing.

Notes
- The playback sound is muted during these modes except for normal speed playback.
- Tapes recorded in the LP mode on other VCRs can be played back on this unit's VCR but the picture quality cannot be guaranteed
- If the playback mode mark doesn't appear on the TV screen, press DISPLAY

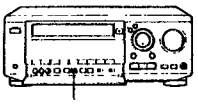
Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, press and hold ▶▶ FF. During rewind, press and hold ◀◀ REW.
Play frame by frame	During pause, lift the top cover of the remote commander and press II▶ FRAME or ◀II FRAME. Hold down either button to play one frame each second
Play in reverse	During playback, press ◁.
Rewind and start play	During stop, lift the top cover of the remote commander and press AUTO PB.

Using the Shuttle ring

With the Shuttle ring, you can operate a variety of playback options. During playback or pause, turn the Shuttle ring clockwise or anticlockwise. Each change in the Shuttle ring position changes the playback mode, and the corresponding mark appears on the TV screen for a few seconds in the following way if the on-screen display function is on:



Recording TV programs using the quick timer

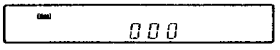


Tips
- You can also set the quick timer and start recording during stop mode. In this case, the unit must be turned on before you start recording.
- You can turn off the unit while recording with the quick timer. This doesn't affect the quick timer recording.
- You can enjoy watching or listening to another input source even during quick timer recording.

Note
- You can use the quick timer only for recording TV programs from the unit's VCR tuner or LINE input source.

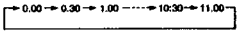
After you start recording a TV program from the unit's VCR tuner, or a DSS receiver connected to the LINE jacks in the normal way, you can have the unit's VCR stop recording automatically after a specified duration.

1 While recording, press QUICK TIMER once.



2 Press QUICK TIMER repeatedly to set the duration.

Each press advances the time in 30 minute increments.



The duration decreases minute by minute to 0:00, then the unit's VCR stops recording and turns off automatically.

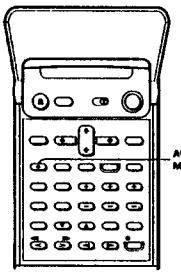
To extend the duration

Press QUICK TIMER repeatedly to set to the new duration.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

Recording stereo and bilingual programs



Notes
- If the AUDIO MONITOR button does not function, check that AUDIO MIX in the SET UP MENU is set to OFF
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

Recording stereo programs

This VCR automatically receives and records stereo programs. When a stereo program is received, the STEREO indicator lights up. If there is noise in the stereo program, set AUTO STEREO in the ADVANCED OPTIONS menu to OFF. The sound will be recorded in monaural (on both hi-fi and normal audio tracks) but with less noise. For details, see page 89.

Recording bilingual programs

Normally, this VCR records only the main sound on both hi-fi and normal audio tracks. To record SAP (Second Audio Program) sound on the normal audio track, set NORMAL AUDIO in the ADVANCED OPTIONS menu to SAP (the SAP indicator lights up). For details, see page 89.

To select the bilingual sound while recording

Press AUDIO MONITOR to select the sound you want.

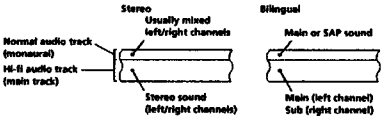
Selecting the sound during playback

Press AUDIO MONITOR to select the sound you want.

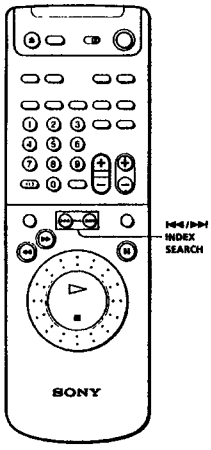
To listen to	On-screen display	Display window
Stereo/main (left and right channels)	STEREO	STEREO
Left channel only	LEFT CH	STEREO
Right channel only	RIGHT CH	STEREO
Monaural (SAP)	No indicator	No indicator

How sound is recorded on a video tape

The unit's VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Searching using the index function



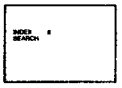
Note

- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

The unit's VCR marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording. The unit's VCR can search up to 99 index signals ahead of or behind the current position.

1 Insert an indexed tape into the unit.

2 Press I◀◀ / ▶▶I INDEX SEARCH repeatedly to specify how many index signals ahead or behind you want to search
- To search ahead, press ▶▶I INDEX SEARCH.
- To search behind, press I◀◀ INDEX SEARCH.



The unit's VCR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.

To stop searching

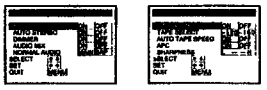
Press ■ STOP.

Changing menu options

1 Press MENU. Then select VHS MENU and press EXECUTE.

2 Press CURSOR ↑/↓ to select ADVANCED OPTIONS and press EXECUTE.

3 Press CURSOR ↑/↓ to select the option to change, then press CURSOR ←/→ to change the setting



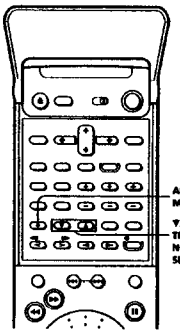
4 Press EXECUTE to return to the original screen.

Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
AUTO ANT SEL	**ON** if your TV is connected only to VHF/UHF OUT on the VCR. To play a tape, set the TV to the VCR channel (channel 3 or 4). **OFF** if your TV is connected to both VHF/UHF OUT and VIDEO OUT on the VCR. To play a tape, set the TV to the VCR input.
AUTO STEREO	**ON** to receive stereo programs, OFF to reduce noise. The sound changes to monaural.
DIMMER	ON to make the display window dim, **OFF** to make it brighter.
AUDIO MIX	ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button will not function. **OFF** to listen to the hi-fi and normal audio tracks separately. Select the sound using the AUDIO MONITOR button. For details, see page 86.
NORMAL AUDIO	**MAIN** to record the main sound on both hi-fi and normal audio tracks. SAP to record the SAP (Second Audio Program) sound on the normal audio track. The main sound is recorded on the hi-fi audio track
INDICATION	**ON** to display the operational function and selected sound field for a few seconds in the display window OFF to display only the indication selected with the STATUS button on the unit. For details, see page 48.
TAPE SELECT	"~120" or "~160" to select the tape length and display the remaining time correctly.
AUTO TAPE SPEED	**ON** to change the timer recording tape speed automatically to the EP mode when the remaining tape becomes shorter than the recording time, OFF to keep the tape speed.
APC	**ON** to switch on the APC (Adaptive Picture Control) function and improve the picture quality, OFF to switch off APC For details, see page 88.
SHARPNESS	L (Low) through H (High) to adjust the sharpness of the picture. L to turn off the sharpness control

Adjusting the picture



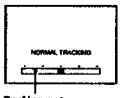
Notes

- Auto tracking adjustment cannot be used on tapes recorded in the LP mode on other VCRs
- The APC function does not work if the tape speed is automatically changed from the SP to EP mode during a timer recording, unless the tape has been recorded in the EP mode with the APC function.
- There is a delay of a few seconds before the unit's VCR actually starts recording while the unit's VCR analyses the tape. To avoid the delay, first set the unit's VCR to recording pause (the APC indicator flashes slowly) and press ● REC to have the unit's VCR analyse the tape (the APC indicator flashes rapidly). After the APC indicator stops flashing, press II PAUSE to start recording immediately. If you want to start recording quickly without using the APC function, first set the unit's VCR to recording pause (the APC indicator flashes slowly) and press II PAUSE to start recording

Adjusting the tracking

Although the unit's VCR automatically adjusts the tracking when playing a tape (the AUTO TRACKING indicator flashes in the display window, then lights steadily), distortion may occur if the tape was poorly recorded. If picture distortion occurs, manually adjust the tracking.

Press ▼/▲ TRACKING NORMAL/SLOW to display the tracking meter. The distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, press TRACKING AUTO/MANUAL to return to automatic adjustment.



Tracking meter

About Adaptive Picture Control (APC)

Adaptive Picture Control (APC) automatically improves recording and playback quality by adjusting the unit's VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set APC to ON in the ADVANCED OPTIONS menu (with the APC indicator in the display window lit)
See "changing menu options."

APC playback

The APC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with APC.

APC recording

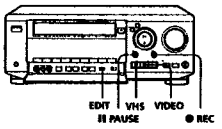
Whenever you insert a tape and first start recording, the unit's VCR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment remains in effect until the tape is ejected.

To deactivate the APC

Press MENU and select SET UP MENU, then set APC to OFF. The APC indicator in the display window goes off.

Editing

Recording from another VCR or LD player



Tips

- To cut out unwanted scenes while editing, press II PAUSE on the unit when an unwanted scene begins. When it ends, press II PAUSE again to resume recording (Assemble Editing).
- You can record audio sound from the desired input source on the video tape by pressing AUDIO repeatedly in step 4.

Note

- If you follow this procedure to start recording, the unit's VCR won't record with the APC function. To record a tape with the APC function, press ● REC again during recording pause in step 2 so the unit's VCR analyses the tape. Then when you start recording in step 6, press II PAUSE after the APC indicator stops flashing. If you press II PAUSE before the APC indicator stops flashing, the APC function is cancelled.

Before you start editing

- Connect another VCR or LD player to the unit referring to the connections on pages 8 and 9.
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually
  - If connected with only the antenna cable, set the TV to the video channel.
- Press TAPE SPEED to select the tape speed, SP or EP.
- On this unit, set the EDIT switch to ON. If the other VCR has a similar switch, set it to ON as well.
- Do not use the remote commander in the following procedure.

1 Insert a tape with its safety tab in place into the unit (recording VCR).

Search for the point to start recording and press II PAUSE.

2 Press ● REC on the unit to set it to recording pause.

3
- **Insert a source tape with its safety tab removed into the other (playback) VCR when recording from another VCR.**
- **Insert an LD into the LD player, when recording from an LD player.**

4 Press VIDEO or VHS repeatedly to select the input (playback) source (VIDEO1, VIDEO2, or LINE).

5 Search for the point to start playback and set it to playback pause.

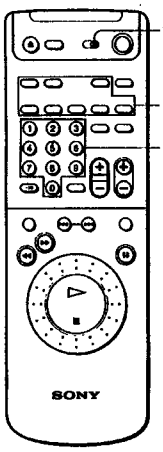
6 To start editing, press II PAUSE on this unit and release the pause mode on the other equipment at the same time.

To stop editing

Press the ■ STOP buttons on both units.

Additional Information

Customizing the remote commander function buttons



Notes

- You cannot customize the VHS TUNER, VHS LINE, and TUNER function buttons.
- The COMMAND MODE selectors on both the remote commander and unit (the actual selector's name on the unit is VTR, COMMAND MODE) are factory set to VTR3.

The function buttons on the remote commander have two roles. One is to select the input sources (see "Selecting the equipment" on page 59) and the other is to switch the remote commander to operate the selected piece of equipment. The function buttons are factory set for the unit's VCR, a radio tuner, CD player, cassette deck (deck B for double-cassette decks), and TV connected to the source inputs. If you want to control other piece of equipment or restore the factory settings, you need to customize the function buttons. For detailed customizing explanations, see the sections for controlling each piece of equipment (see pages 62 through 74). This section shows you the factory settings of, and the way to customize, the remote commander function buttons.

Factory set functions

Press	Then, the remote commander operates
VHS TUNER	The unit's VCR (The COMMAND MODE selector determines the controllable VCR.)
VHS LINE	Same as above
VIDEO 1	Same as above
VIDEO 2	Same as above
TUNER	Same as above
CD	A CD player
TAPE/MD	A single cassette deck or deck B of a double-cassette deck
TV	A TV

To customize the function buttons

To control	While pressing one of the function buttons, press
A CD player	1
A DAT deck	2
An MD deck	3
A single cassette deck or Deck B of a double-cassette deck	4
A single cassette deck or Deck A of a double-cassette deck	5
An LD player	6
A VCR if its COMMAND MODE position/format is	
VTR1/Betamax	7
VTR2/8mm	8
VTR3/VHS	9
A TV	0

To restore the factory settings for all the function buttons

Remove the batteries from the remote commander, and insert the batteries again.

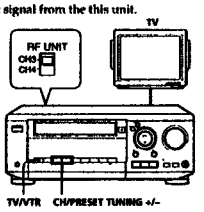
To restore the factory settings for VIDEO1 or VIDEO2

See "To relate VIDEO1 or VIDEO2 with COMMAND MODE again" on page 63.

General setup information

Setting the RF unit

When connecting this unit to the TV using only the antenna cable, you must set the RF UNIT switch on the rear of the unit so that the TV can receive the correct signal from the this unit.



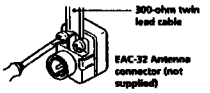
1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel.
2 Press POWER to turn on this unit.
3 Press TV/VTR to turn on the VTR indicator in the unit's display window.
4 Press CH/PRESET +/– to display a channel number in the display window. Select an active channel number in your area.
5 Turn on your TV and set it to the channel you selected in step 1 (channel 3 or 4).

The selected TV channel broadcast appears on the TV screen. If the channels change when you press CH/PRESET +/– on this unit, you have made the correct setting.

Whenever you use this unit, set the TV to the channel selected in step 1.

Attaching the external antenna connector

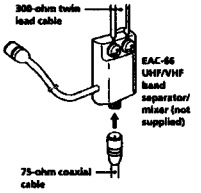
When using a 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-32 antenna connector (not supplied) to connect the antenna to the VCR.



1 Loosen the screws on the antenna connector.
2 Wind the twin leads around the screws on the antenna connector.
3 Retighten the screws.

Attaching a UHF/VHF band mixer

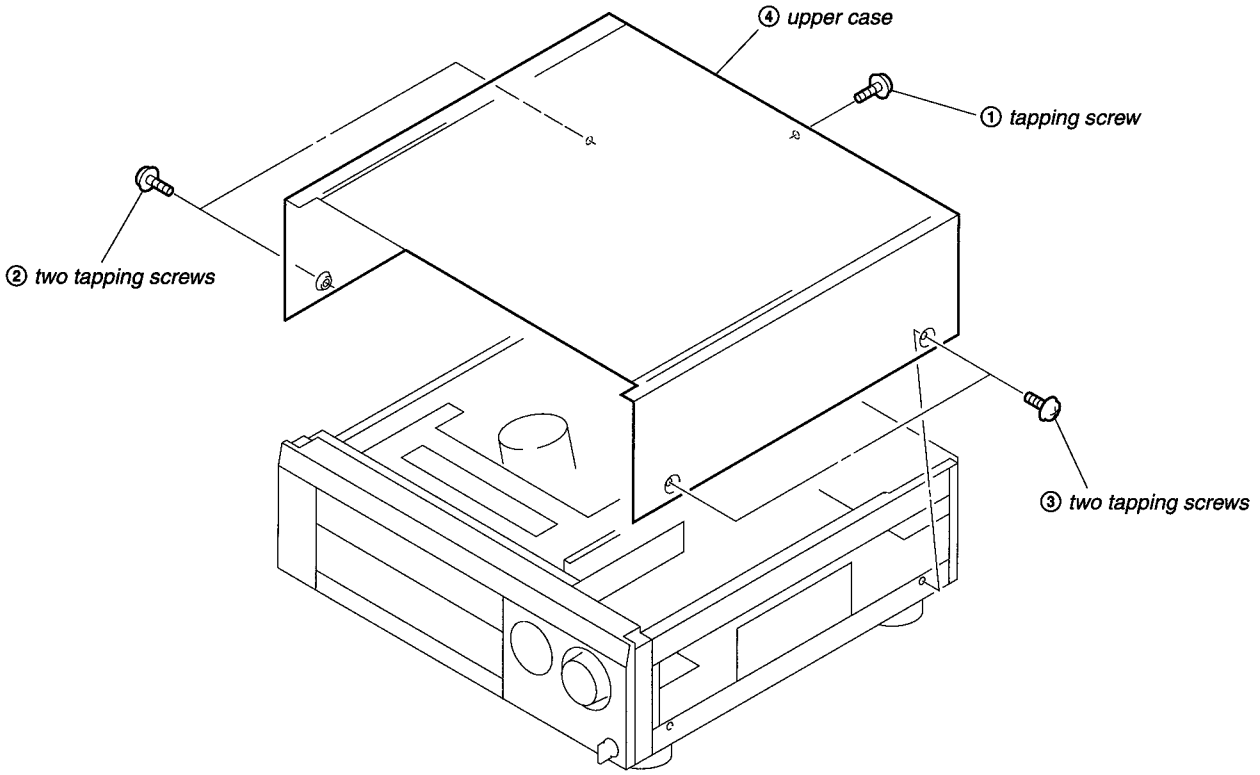
When using both 75-ohm coaxial cable and 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-66 UHF/VHF band separator/mixer (not supplied) to connect the antenna to the VCR.



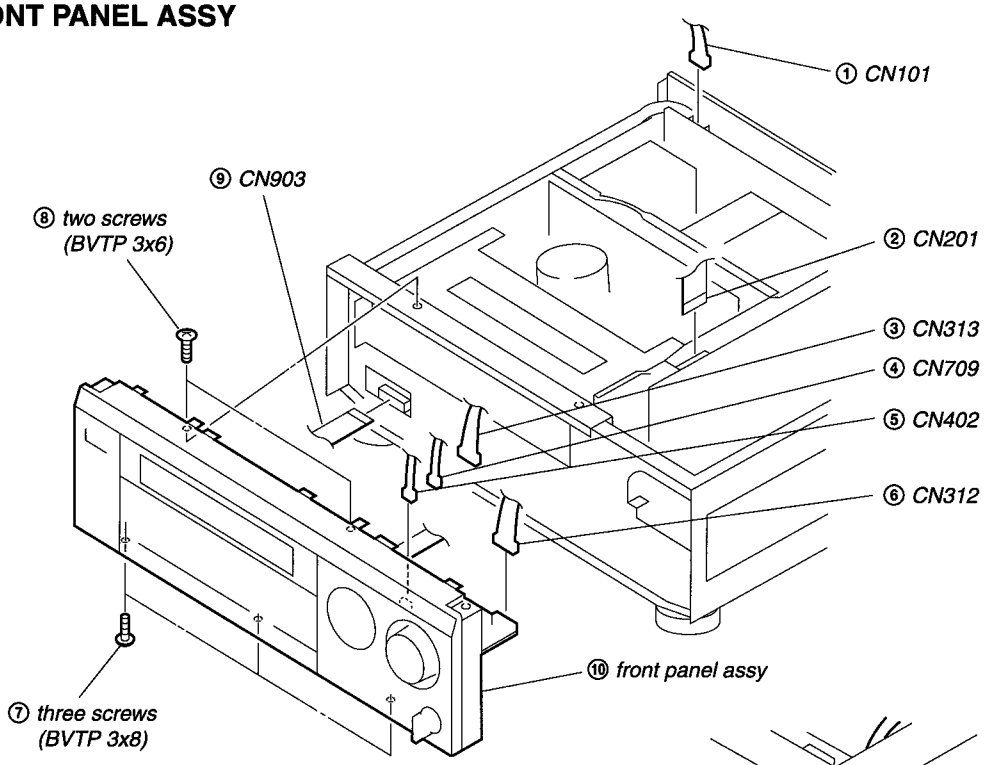
1 Loosen the screws on the mixer.
2 Wind the twin leads around the screws on the mixer.
3 Retighten the screws.
4 Connect the 75-ohm coaxial cable to the mixer.

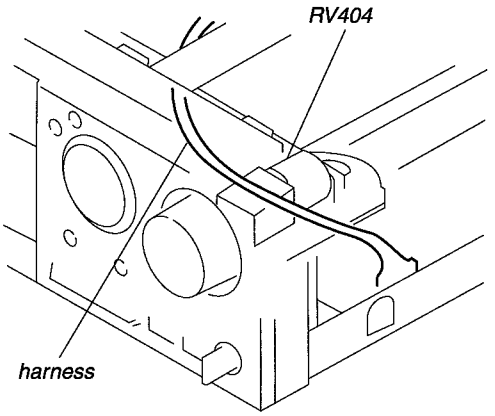
SECTION 2
DISASSEMBLY

2-1. UPPER CASE



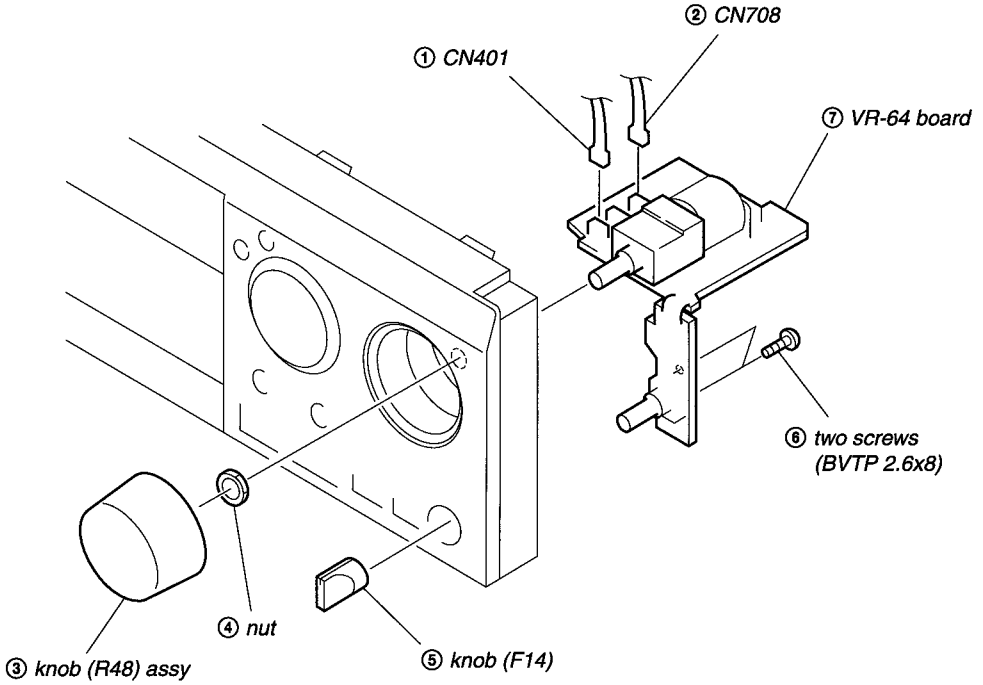
2-2. FRONT PANEL ASSY



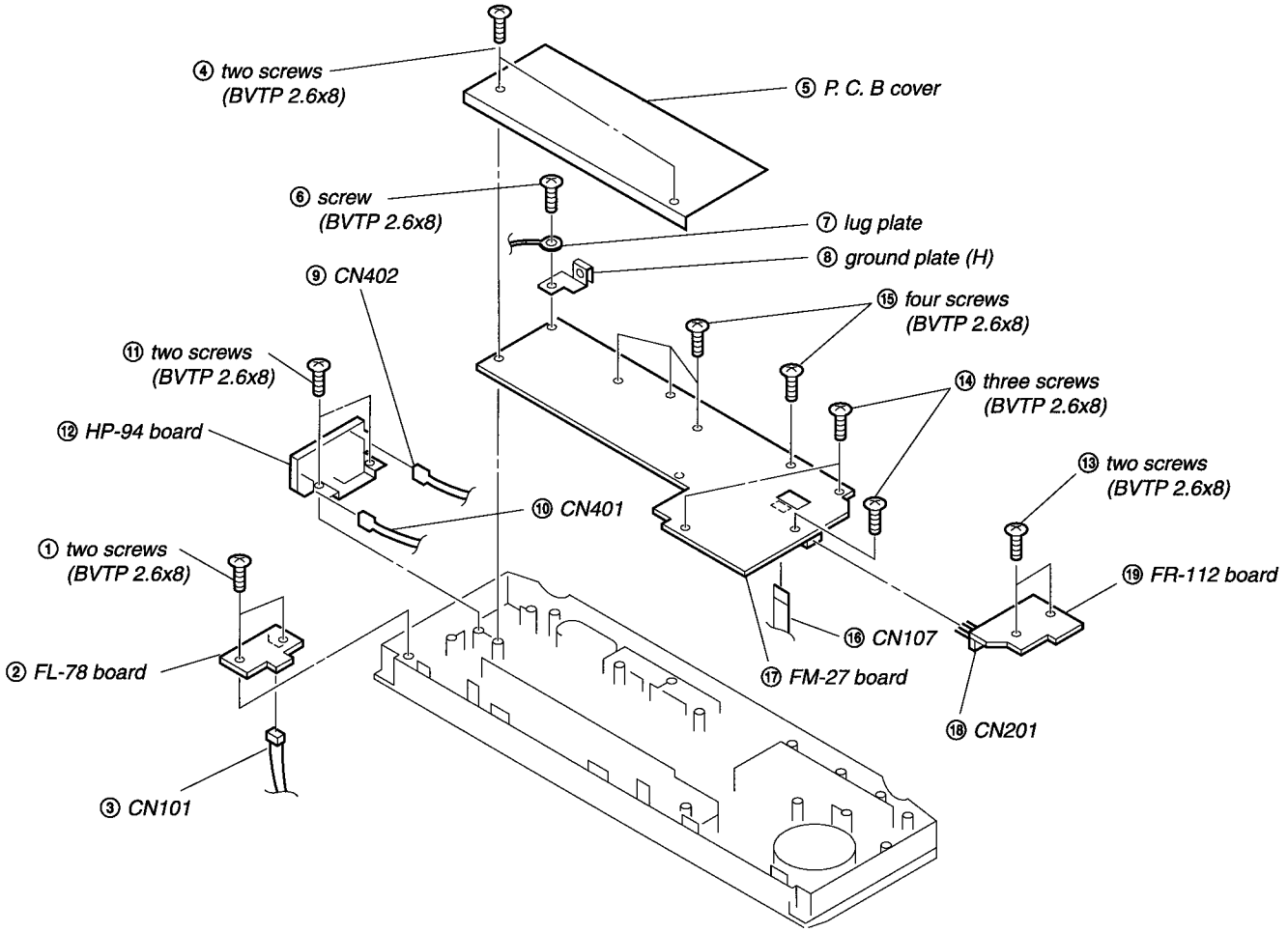


• Note for mounting of the front panel.
The harness should be positioned as given in the figure.

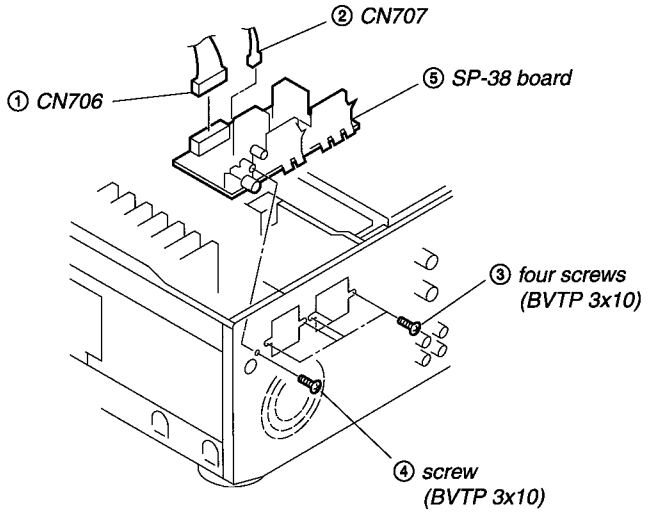
2-3. VR-64 BOARD



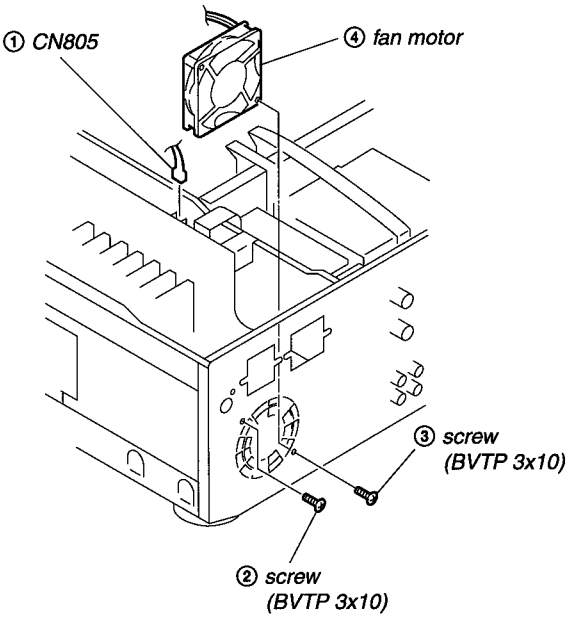
2-4. FM-27 BOARD



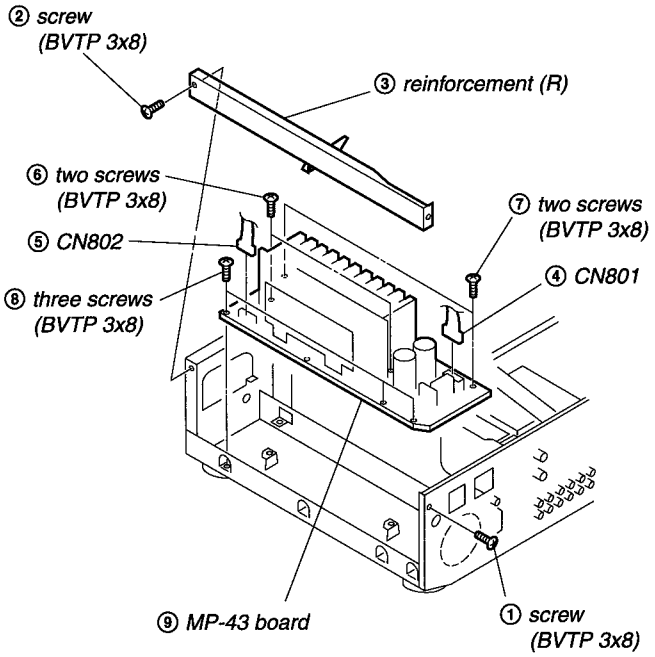
2-5. SP-38 BOARD



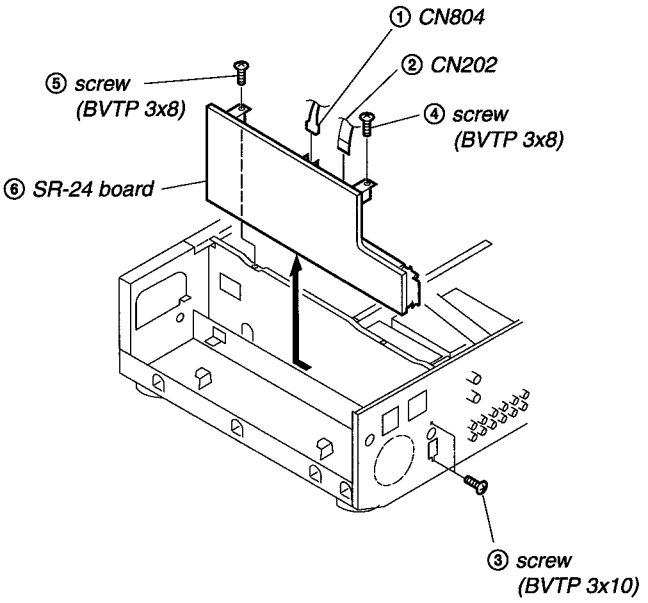
2-6. FAN MOTOR



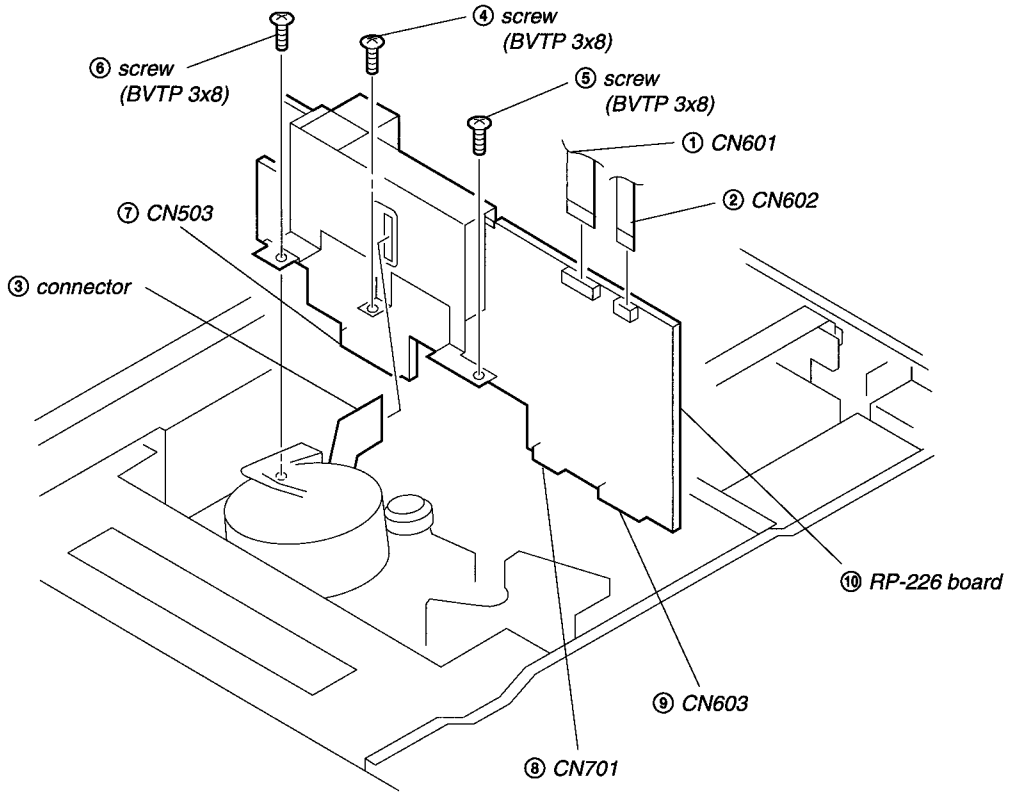
2-7. MP-43 BOARD



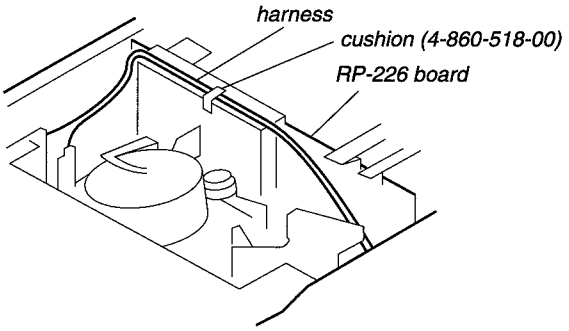
2-8. SR-24 BOARD



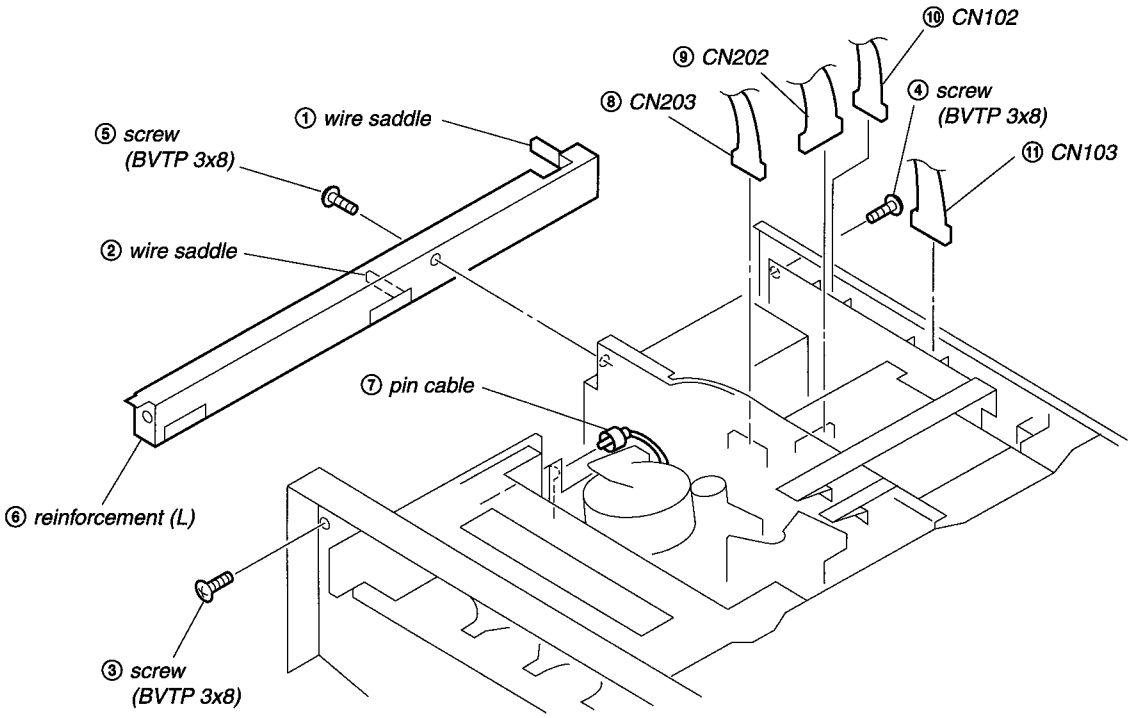
2-9. RP-226 BOARD



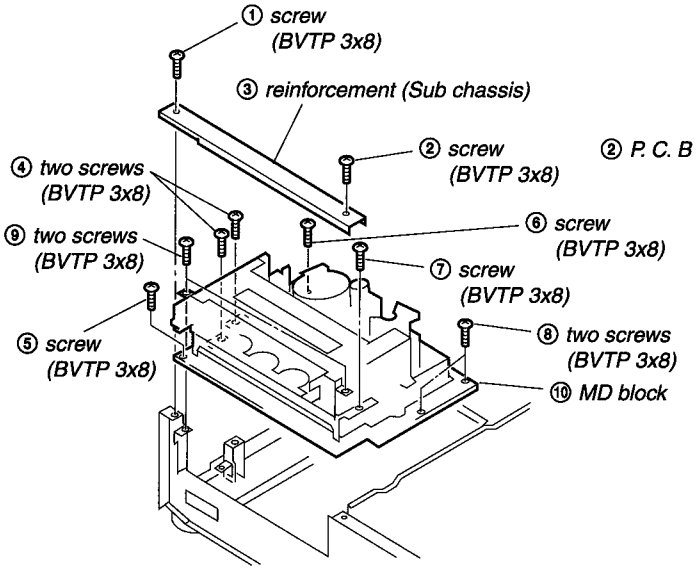
• Note for mounting of the RP-226 board.
The harness should be positioned as given in the figure.



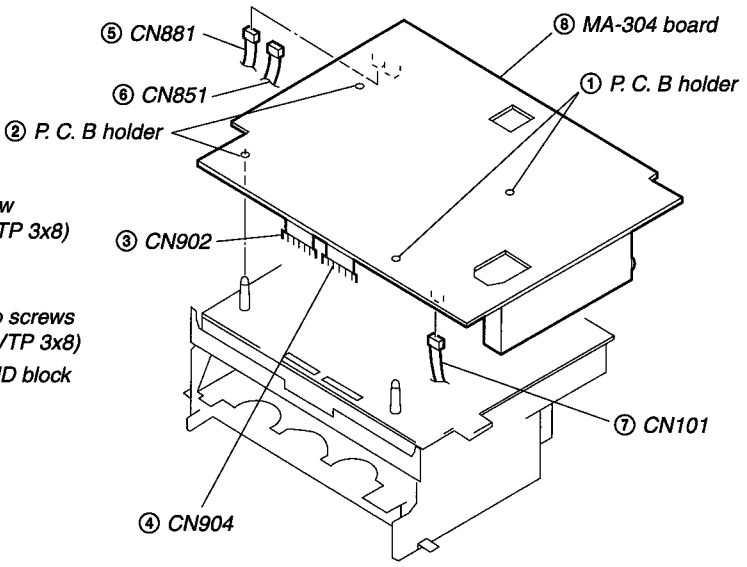
2-10. MD BLOCK (1)



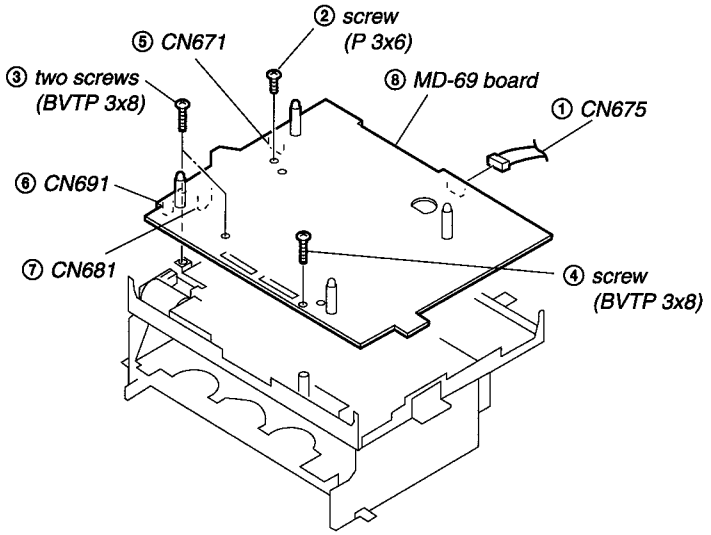
2-11. MD BLOCK (2)


① screw (BVTP 3x8)
③ reinforcement (Sub chassis)
② screw (BVTP 3x8)
④ two screws (BVTP 3x8)
⑥ screw (BVTP 3x8)
⑨ two screws (BVTP 3x8)
⑦ screw (BVTP 3x8)
⑤ screw (BVTP 3x8)
⑧ two screws (BVTP 3x8)
⑩ MD block

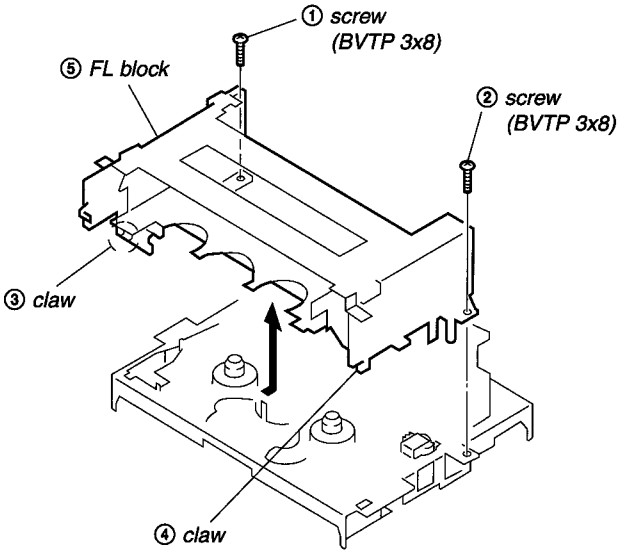
2-12. MA-304 BOARD



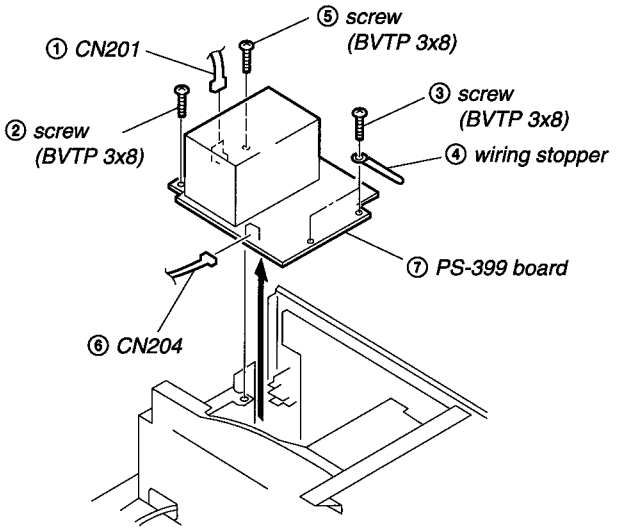
2-13. MD-69 BOARD



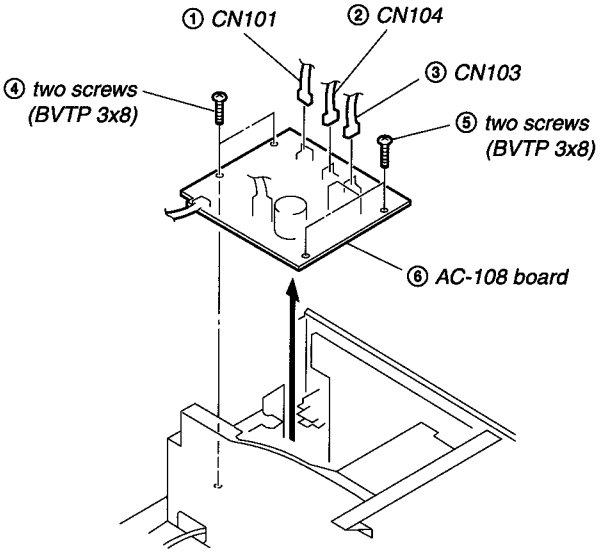
2-14. FL BLOCK



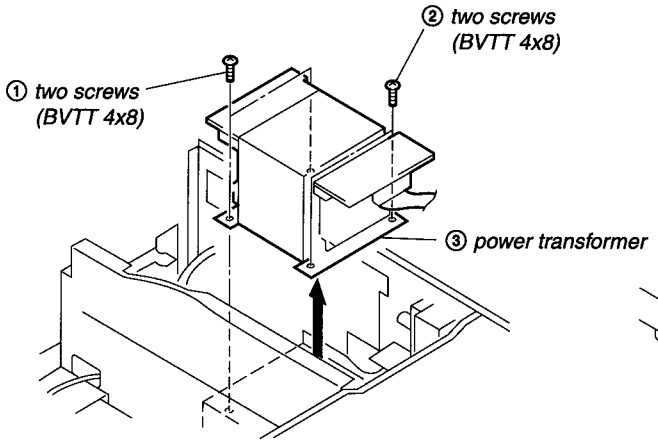
2-15. PS-399 BOARD



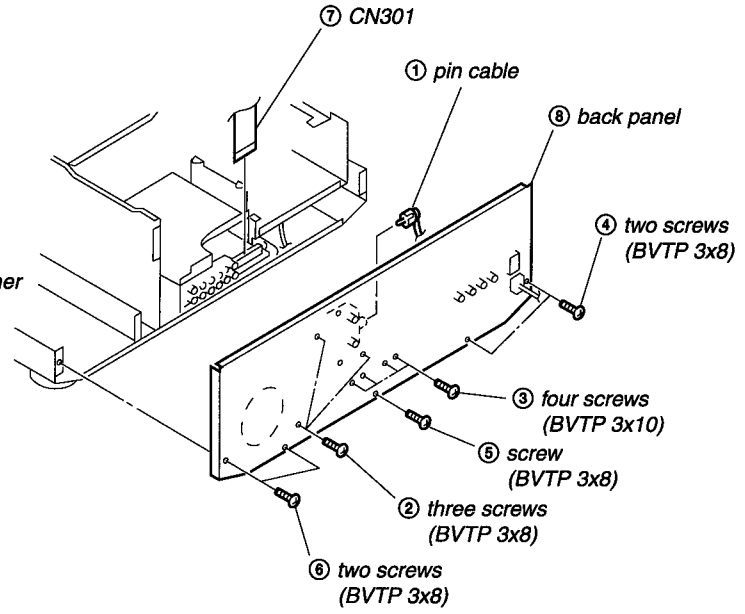
2-16. AC-108 BOARD



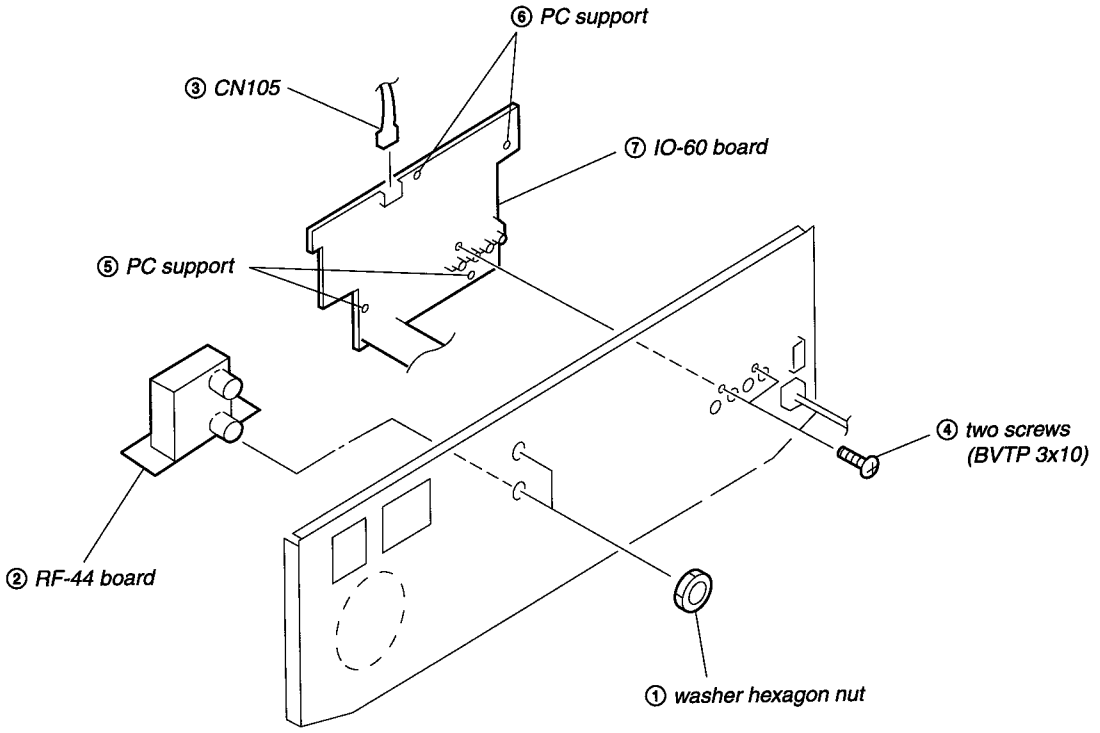
2-17. POWER TRANSFORMER



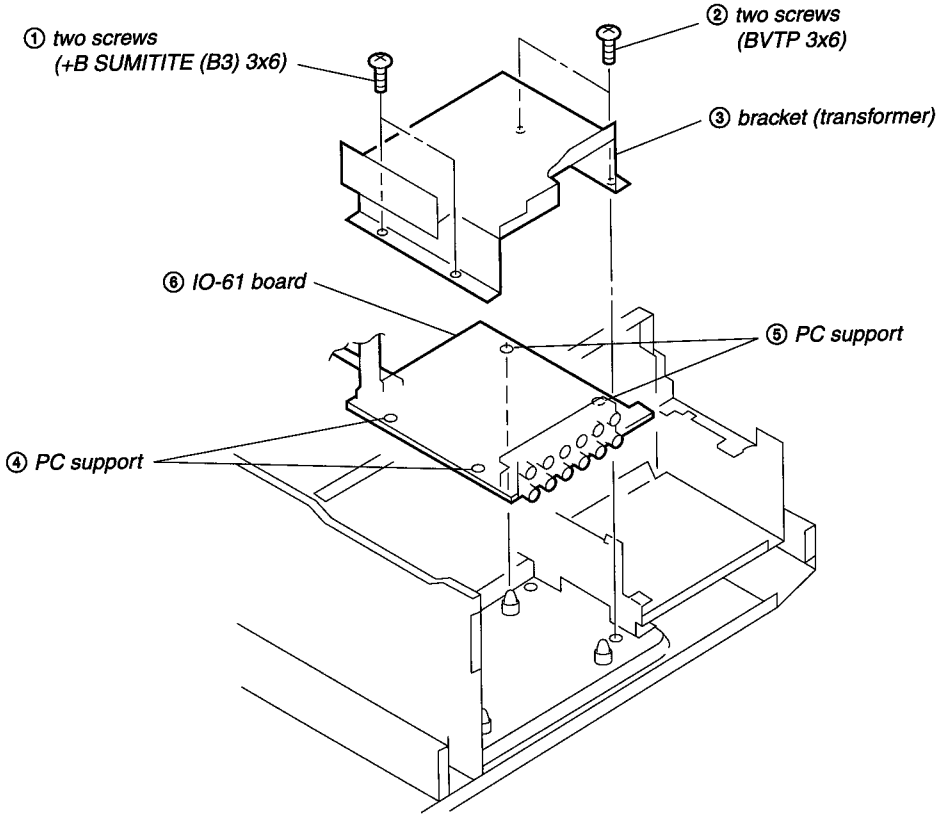
2-18. BACK PANEL



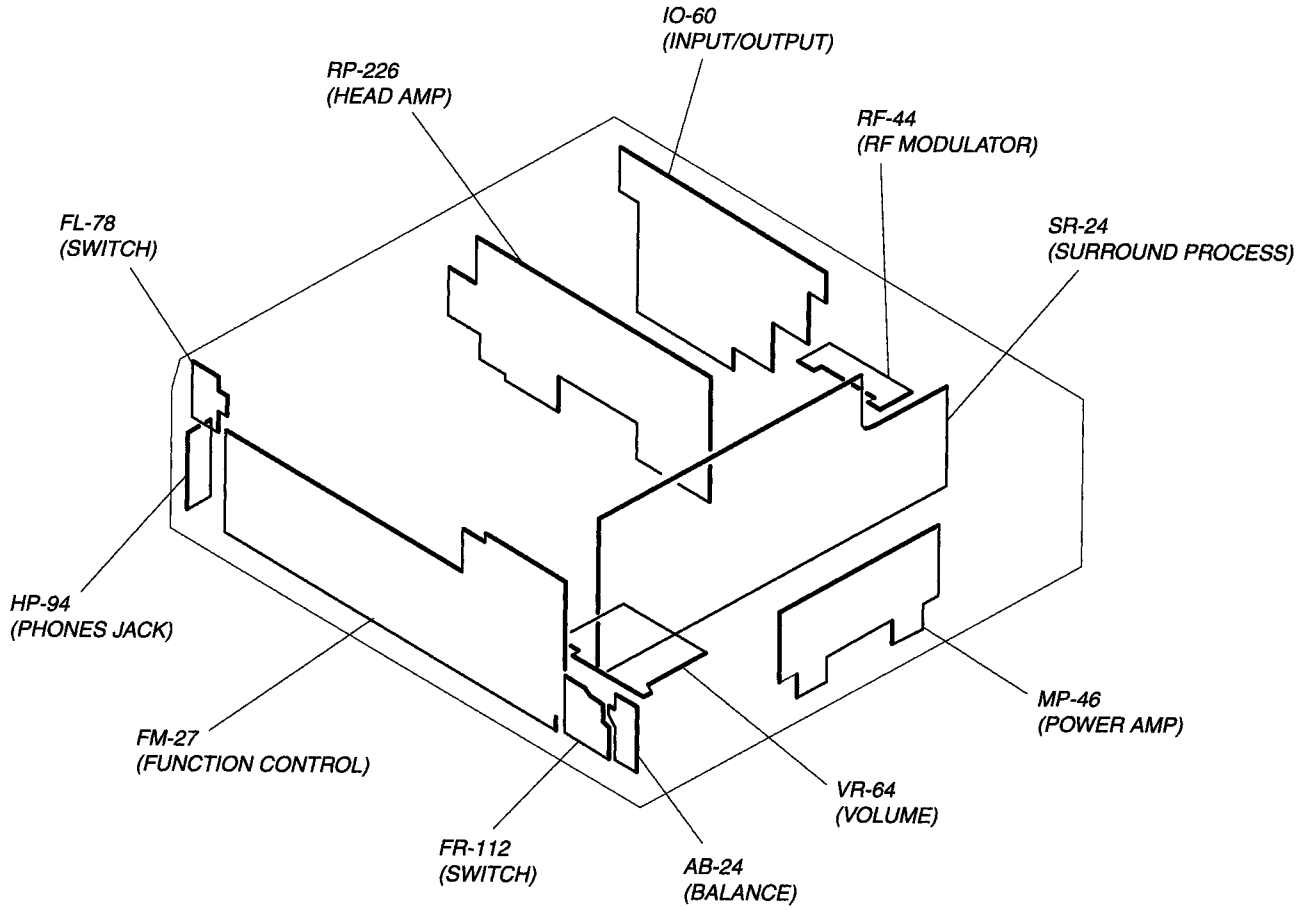
2-19. IO-60 BOARD

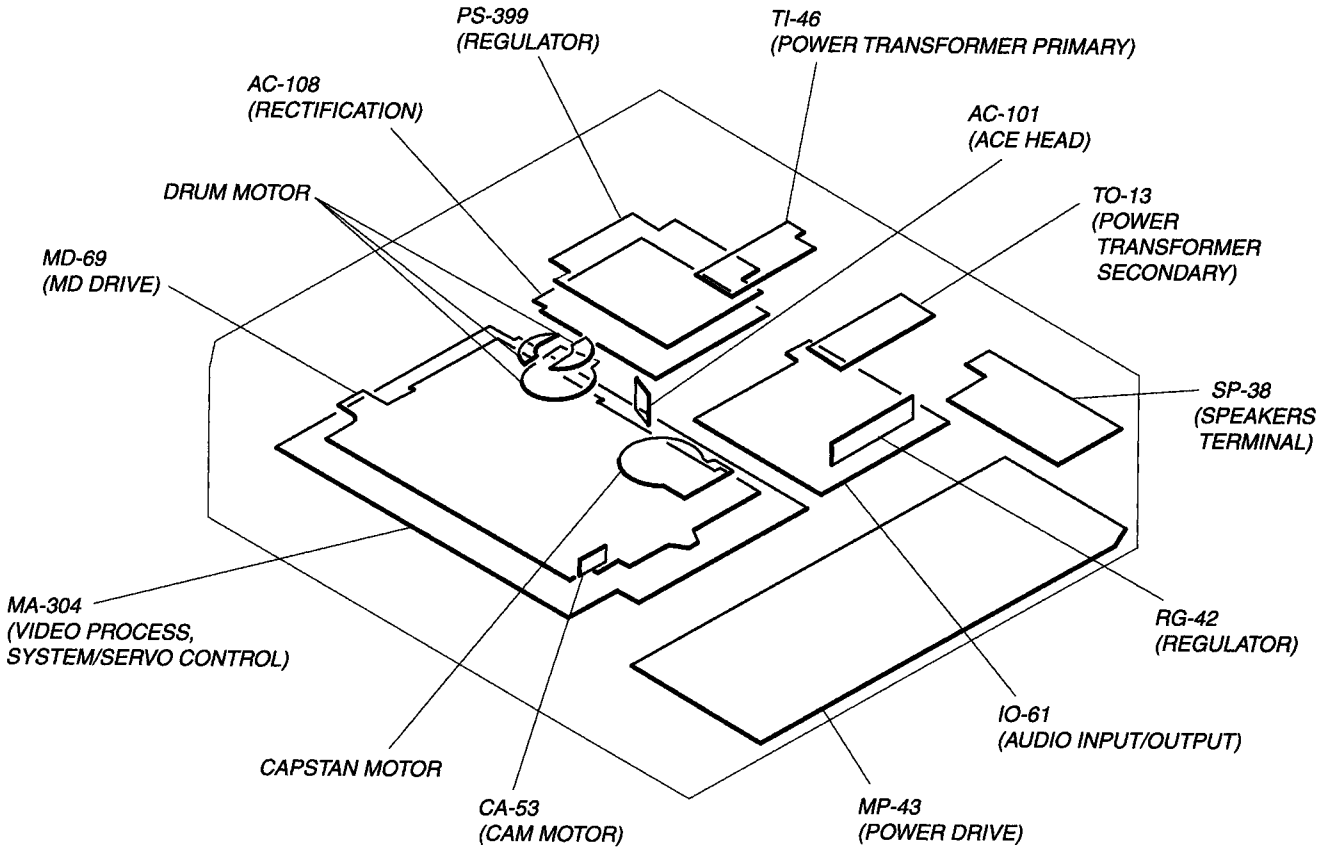


2-20. IO-61 BOARD



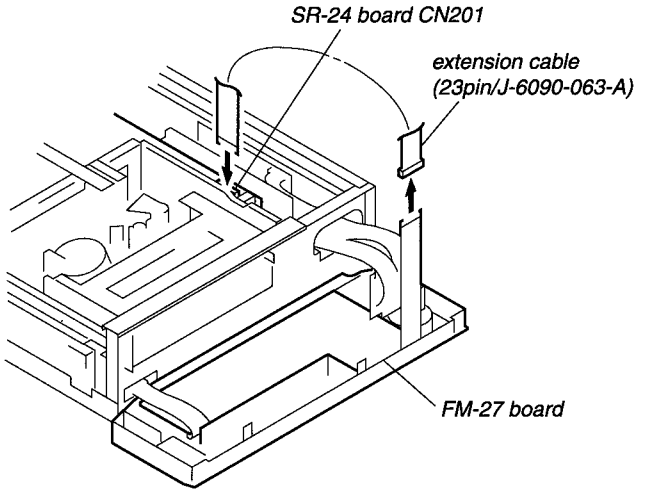
2-21. CIRCUIT BOARDS LOCATION





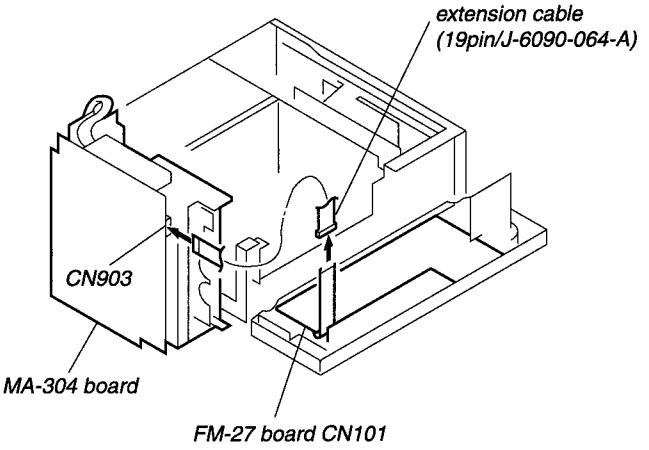
SECTION 3
SERVICE POSITION

3-1. FM-27 BOARD



3-2. MA-304 BOARD

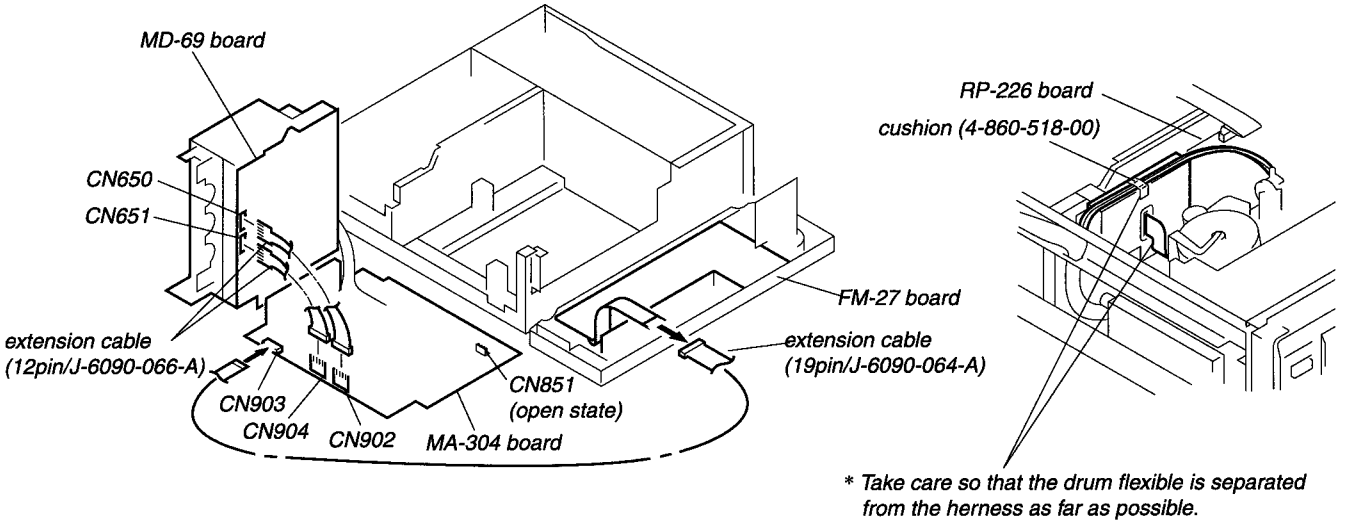
① *Remove the flat cables from CN601 and CN602 of the RP-226 board. (OPEN state)*



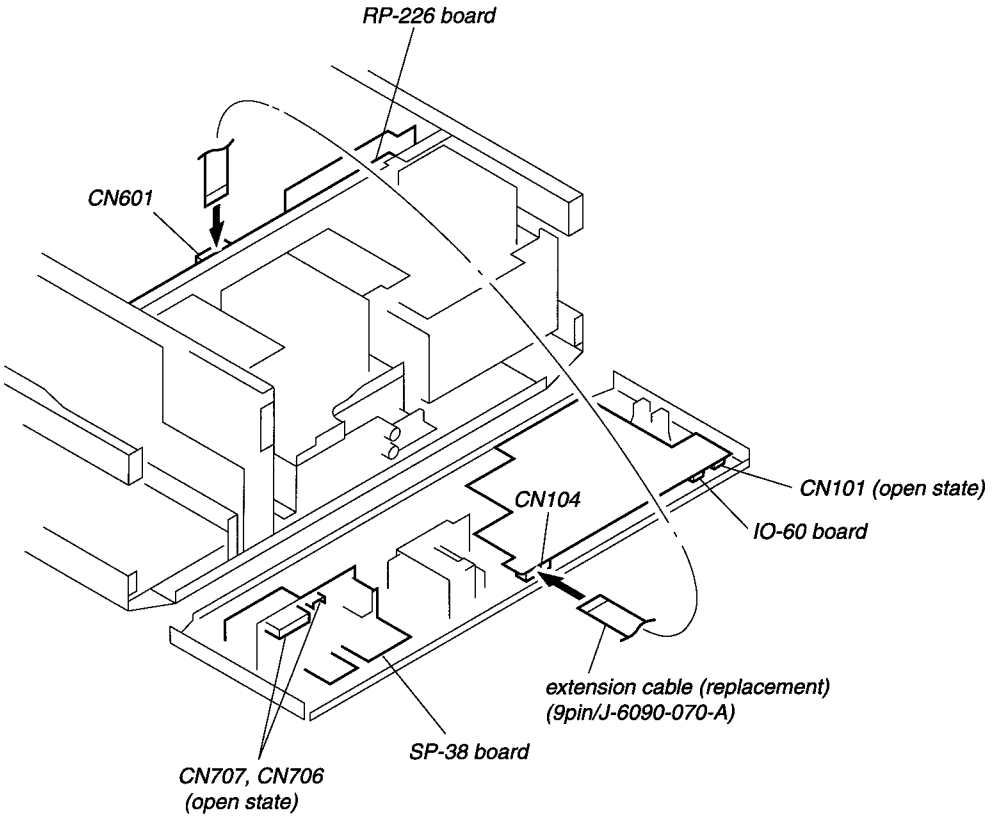
3-3. MD-69 BOARD

① *Remove the RP-226 board.*

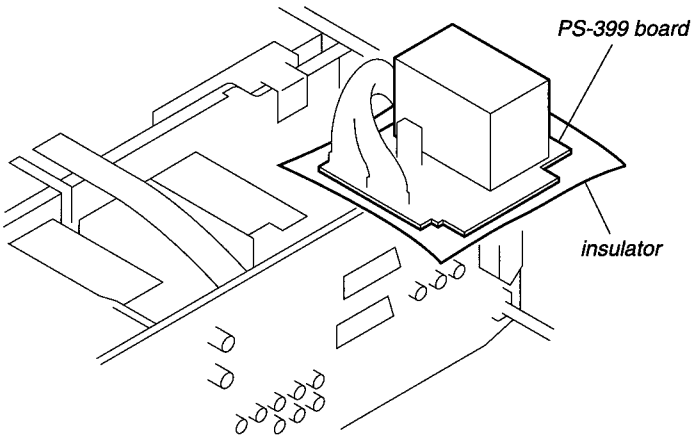
• Note for mounting of the RP-226 board.



3-4. IO-60 BOARD

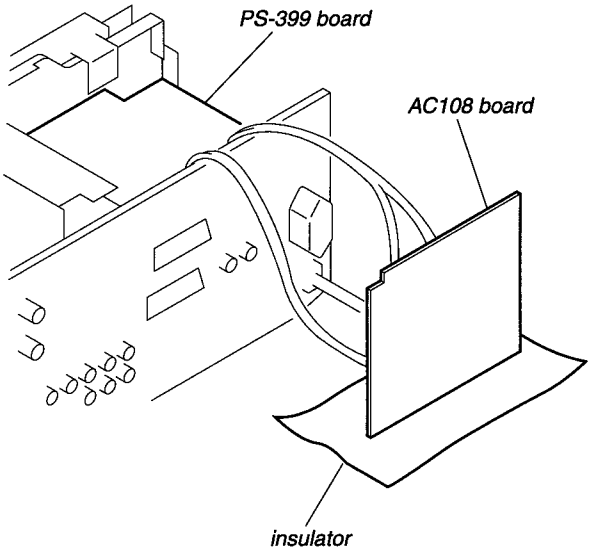


3-5. PS-399 BOARD

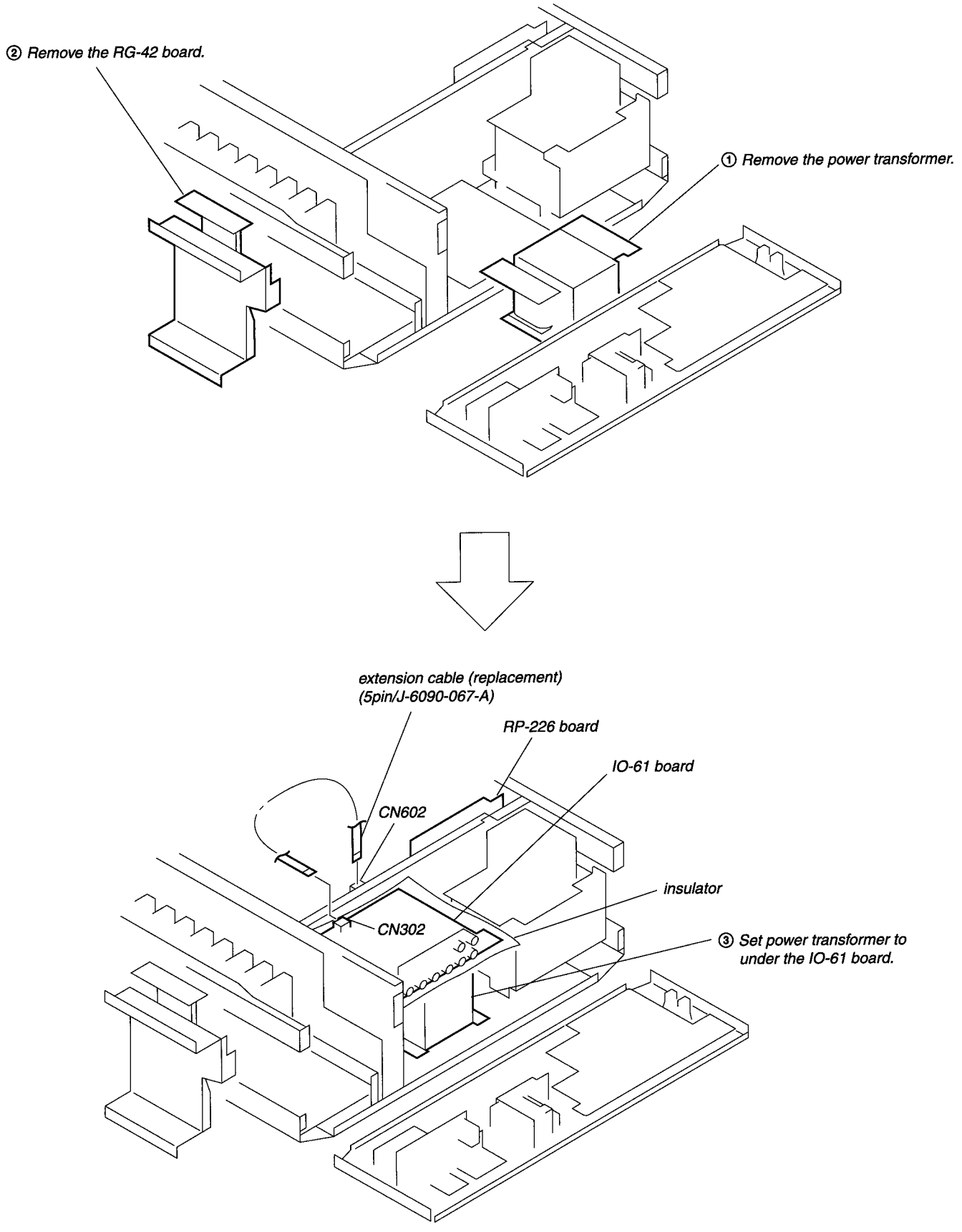


3-6. AC-108 BOARD

① *Change the positions between the PS-399 board on the upside and AC-108 board on the downside.*

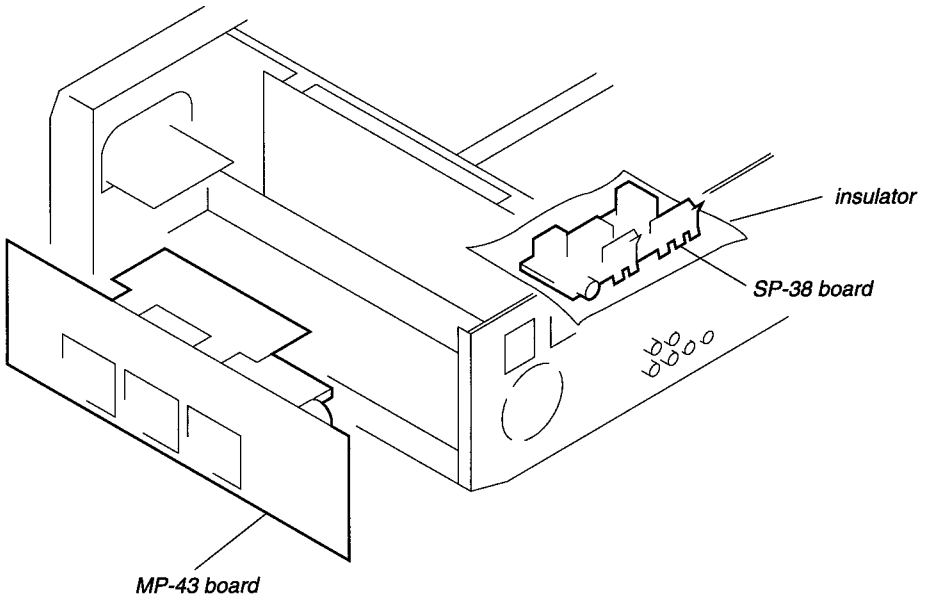


3-7. IO-61 BOARD

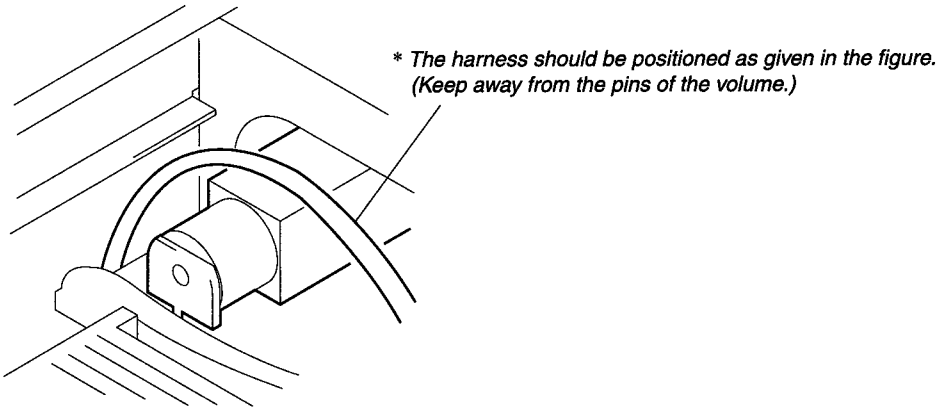


3-8. MP-43 BOARD AND SP-38 BOARD

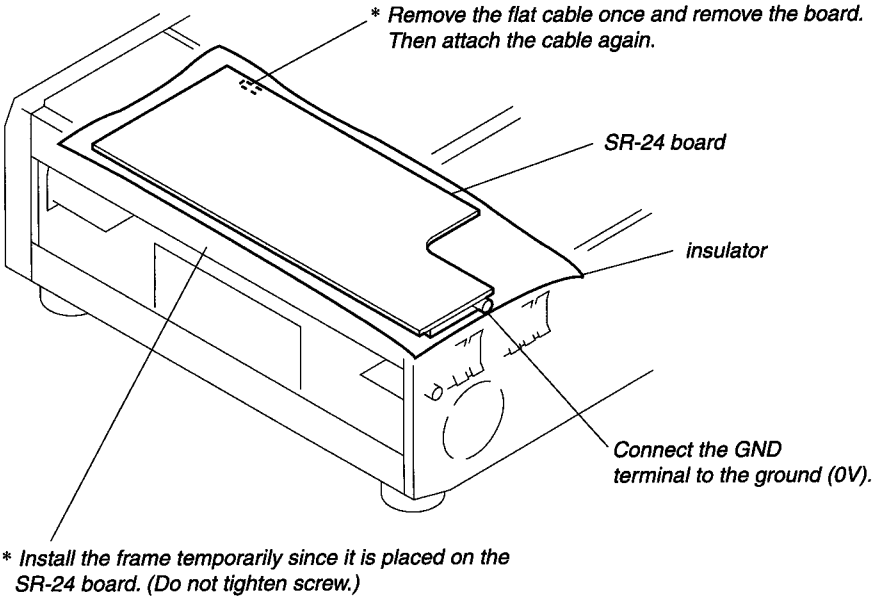
① *Remove the fan motor.*



• Note for mounting of the VR-64 board.

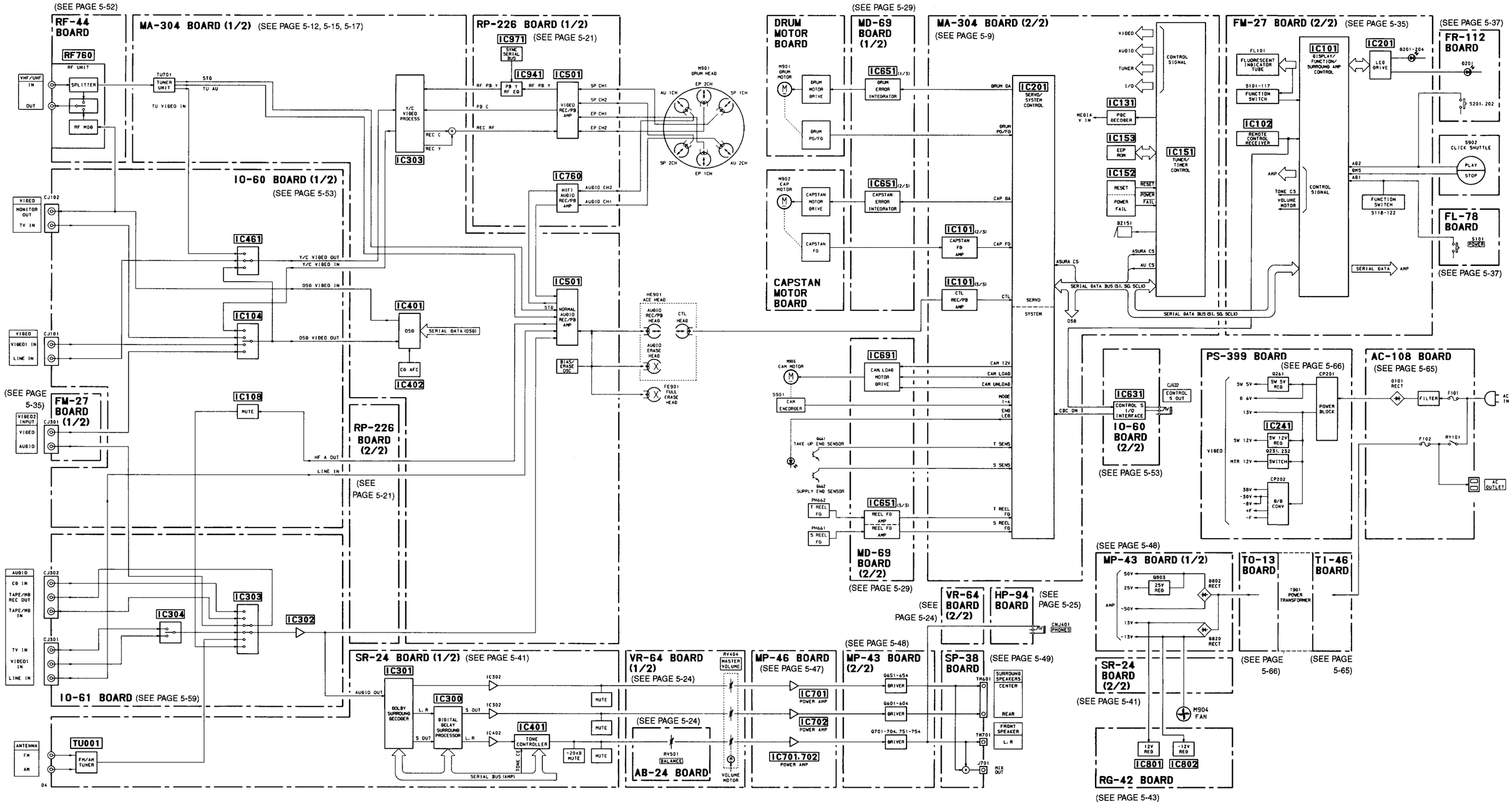


3-9. SR-24 BOARD

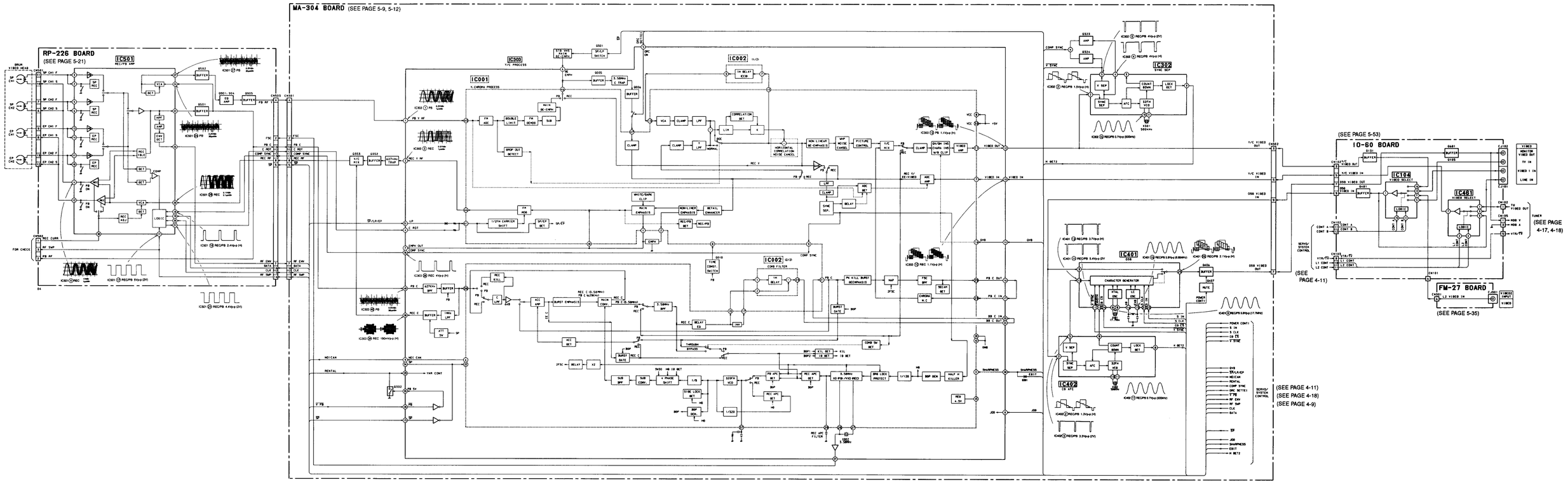

* Remove the flat cable once and remove the board.
Then attach the cable again.
SR-24 board
insulator
Connect the GND
terminal to the ground (0V).
* Install the frame temporarily since it is placed on the
SR-24 board. (Do not tighten screw.)

SECTION 4
BLOCK DIAGRAMS

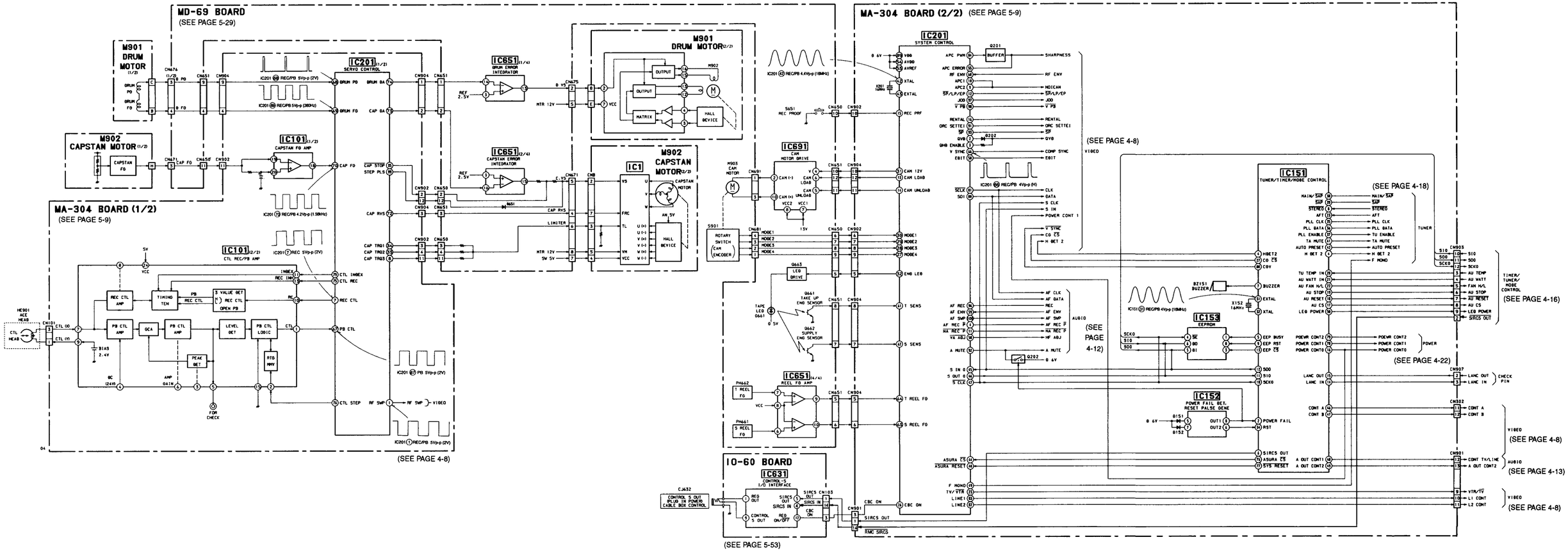
4-1. OVERALL BLOCK DIAGRAM



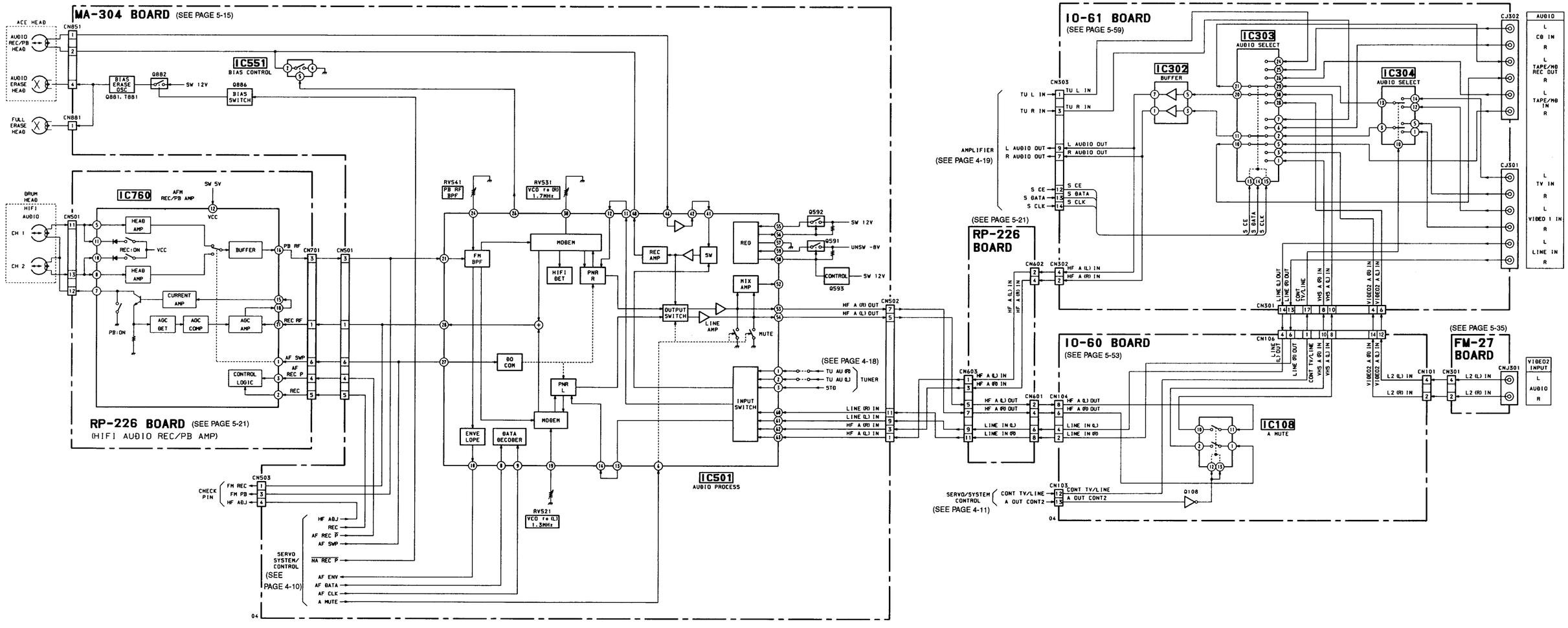
4-2. VIDEO BLOCK DIAGRAM



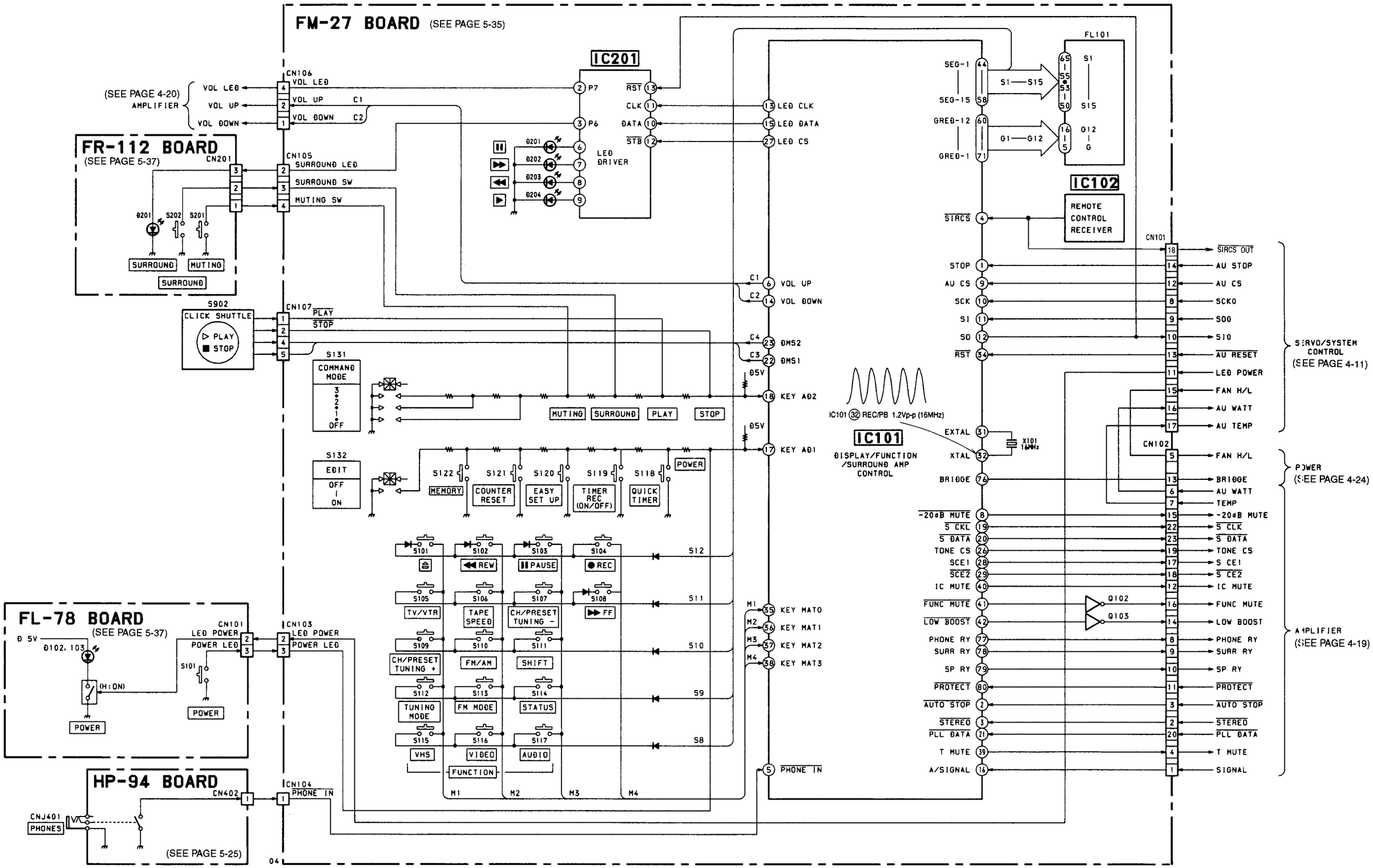
4-3. SERVO/SYSTEM CONTROL BLOCK DIAGRAM



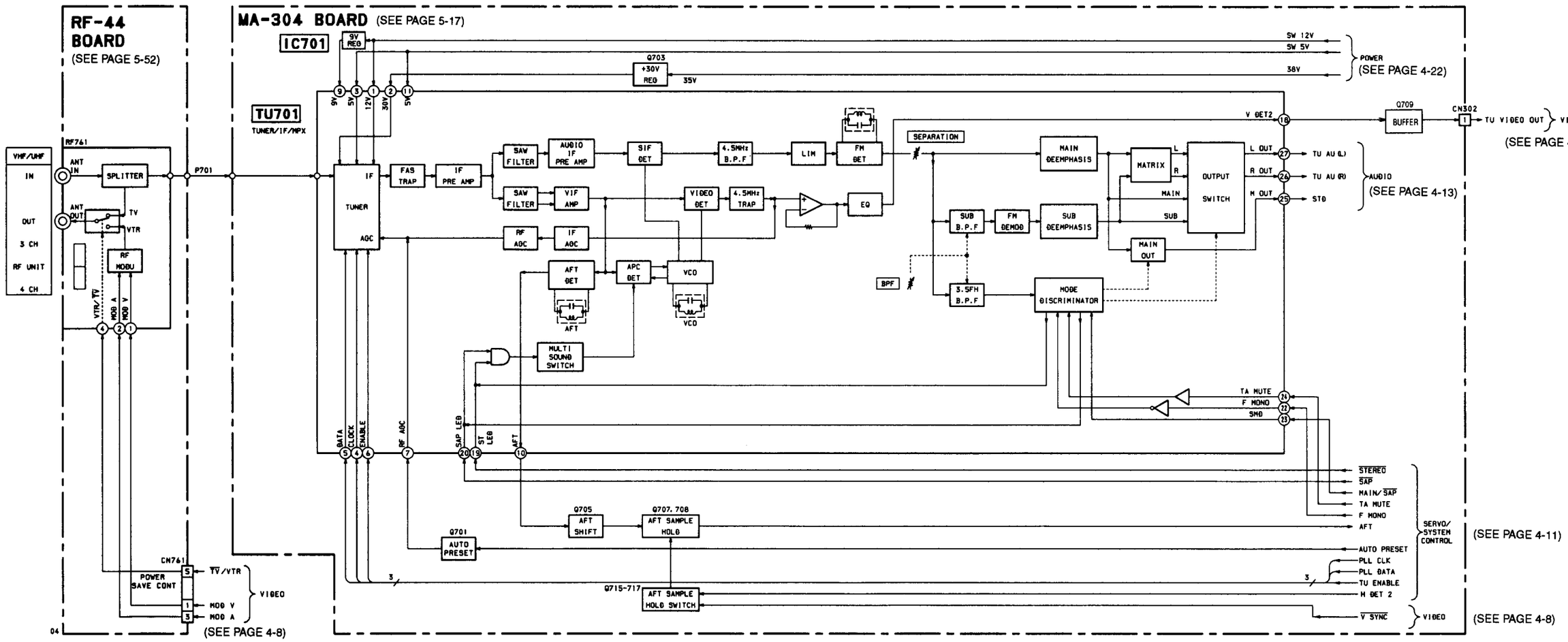
4-4. AUDIO BLOCK DIAGRAM



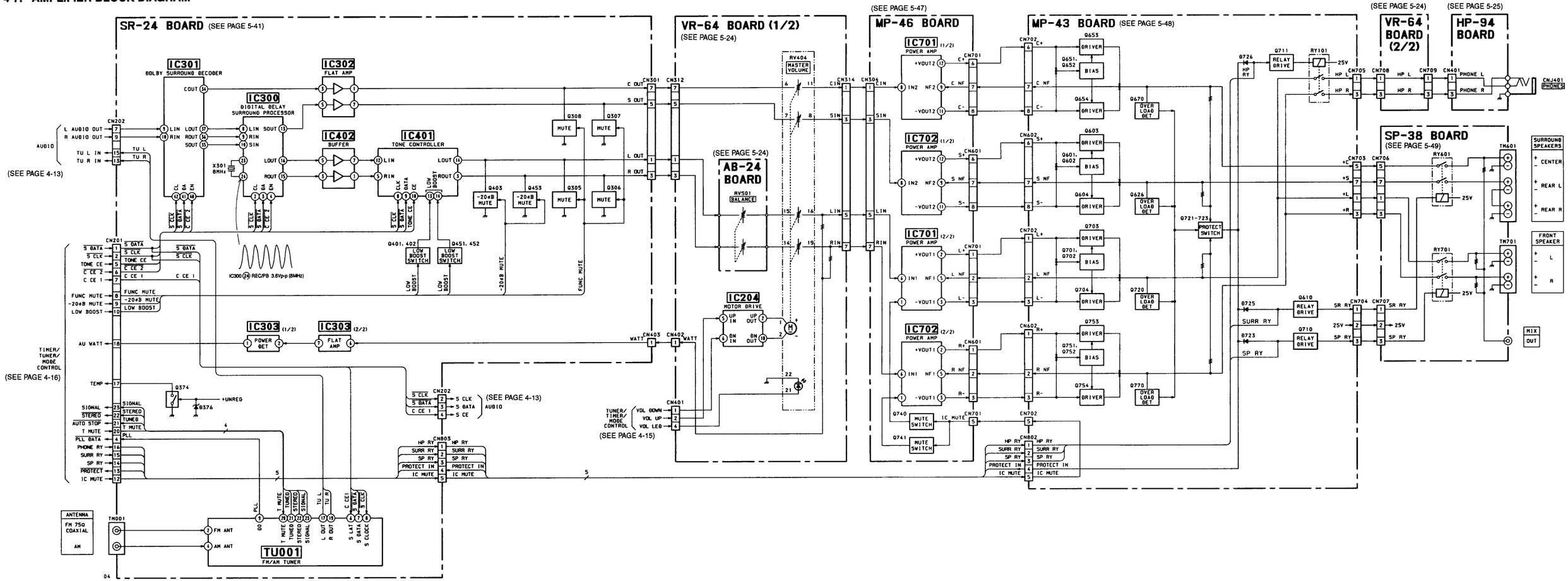
4-5. TIMER/TUNER/MODE CONTROL BLOCK DIAGRAM



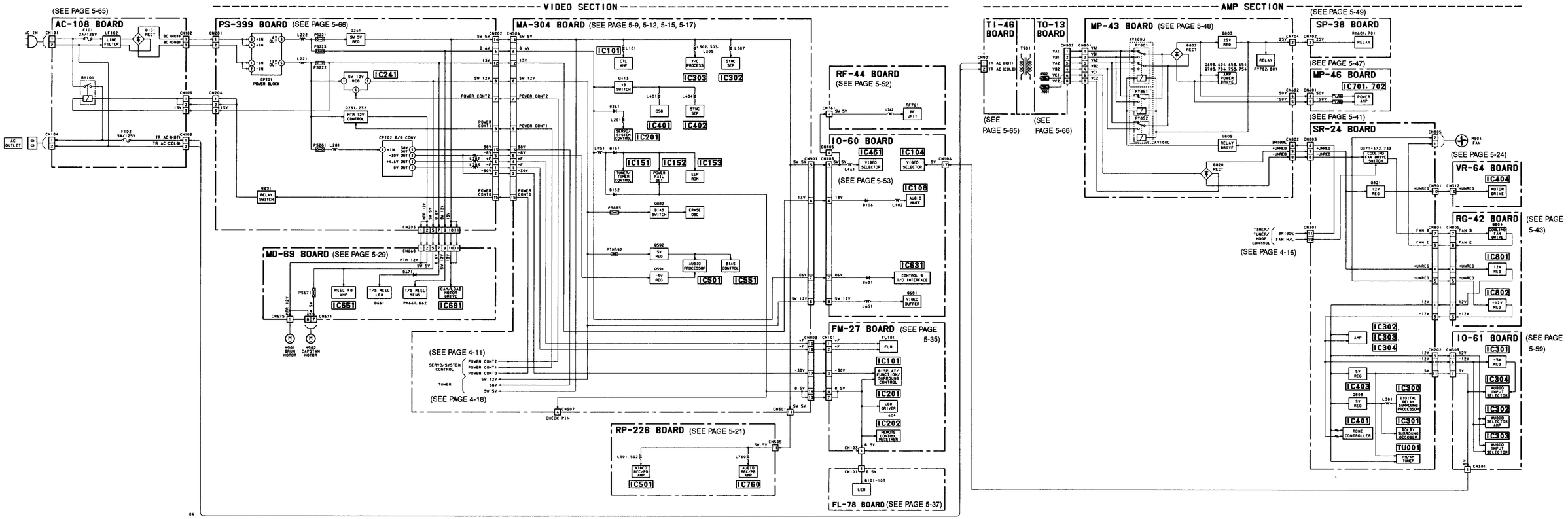
4-6. TUNER BLOCK DIAGRAM



4-7. AMPLIFIER BLOCK DIAGRAM

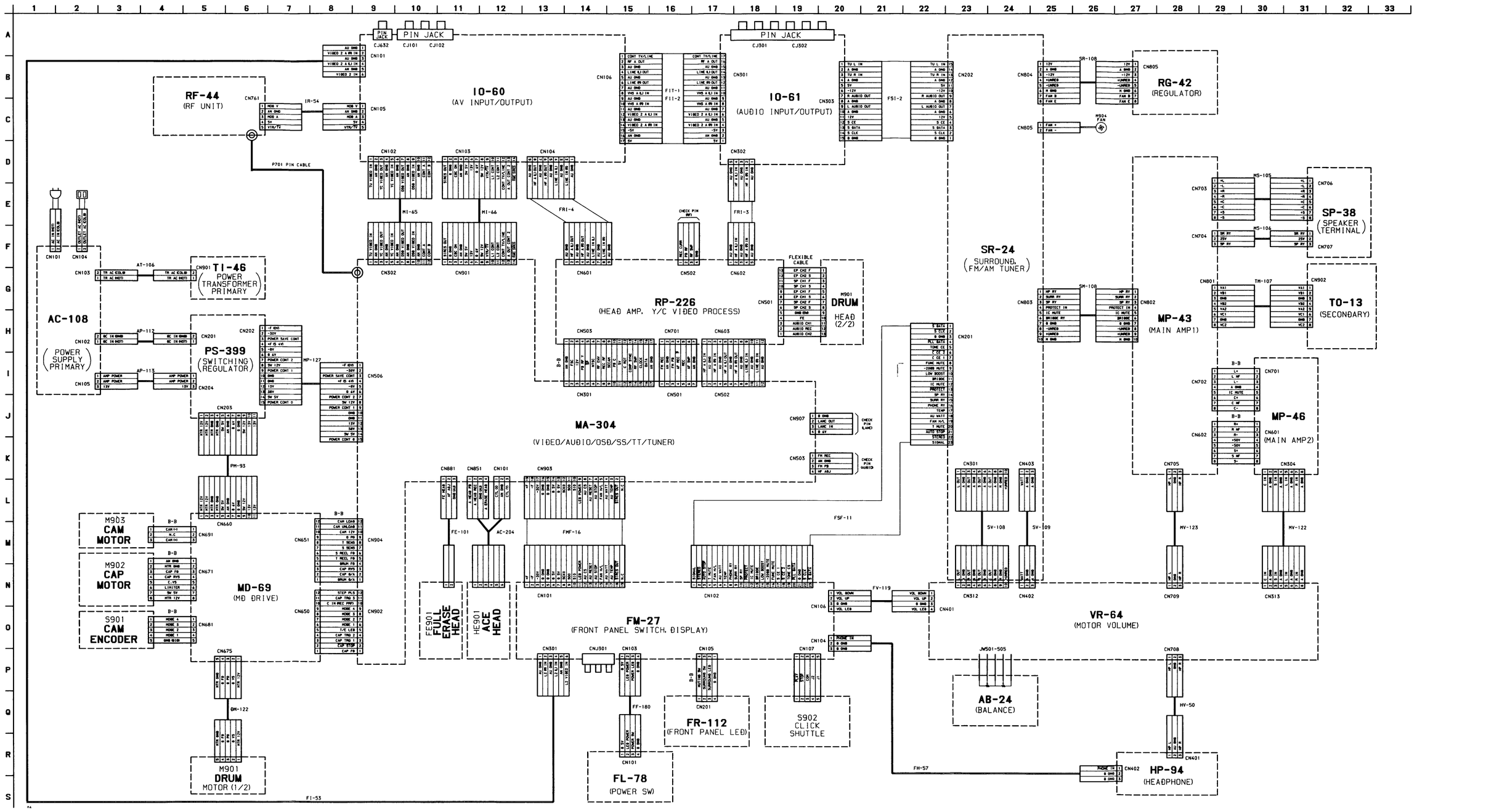

SR-24 BOARD (SEE PAGE 5-41)
VR-64 BOARD (1/2) (SEE PAGE 5-24)
MP-46 BOARD (SEE PAGE 5-47)
MP-43 BOARD (SEE PAGE 5-48)
VR-64 BOARD (2/2) (SEE PAGE 5-24)
HP-94 BOARD (SEE PAGE 5-25)
SP-38 BOARD (SEE PAGE 5-49)
AB-24 BOARD (SEE PAGE 5-24)
IC301 DOLBY SURROUND DECODER
IC300 DIGITAL DELAY SURROUND PROCESSOR
IC302 FLAT AMP
IC402 BUFFER
IC401 TONE CONTROLLER
IC303 (1/2) POWER OET
IC303 (2/2) FLAT AMP
IC204 MOTOR DRIVE
IC701 (1/2) POWER AMP
IC702 (1/2) POWER AMP
IC701 (2/2) POWER AMP
IC702 (2/2) POWER AMP
TU001 FM/AM TUNER
ANTENNA FM 75Ω COAXIAL AM
AUDIO (SEE PAGE 4-13)
TIMER/ TUNER/ MODE CONTROL (SEE PAGE 4-16)
TUNER/ TIMER/ MODE CONTROL (SEE PAGE 4-15)
SURROUND SPEAKERS CENTER REAR L REAR R
FRONT SPEAKER L R
MIX OUT

4-8. POWER BLOCK DIAGRAM



SECTION 5
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

5-1. FRAME SCHEMATIC DIAGRAM



5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

• For printed wiring boards.

- ○ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side. *
- Circled numbers refer to waveforms.

• For schematic diagrams.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantaliums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : internal component.
- : adjustment for repair. *
- : B + Line. *
- : B – Line. *
- : IN/OUT direction of (+, –) B line. *
- Circled numbers refer to waveforms. *
- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

- Extension cable
  Ⓐ FM-27 Board
  • FM-27 board CN102←→SR-24 board CN201
  Part No. J-6090-063-A (23pin)
  Ⓑ MA-304 Board
  • MA-304 board CN903←→FM-27 board CN101
  Part No. J-6090-064-A (19pin)
  Ⓒ MD-69 Board
  • MD-69 board CN650←→MA-304 board CN902
  • MD-69 board CN651←→MA-304 board CN904
  Part No. J-6090-066-A (12pin)
  Ⓓ IO-60 Board
  • IO-60 board CN104←→RP-226 board CN601
  Part No. J-6090-070-A (9pin)

Note:	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifies par une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

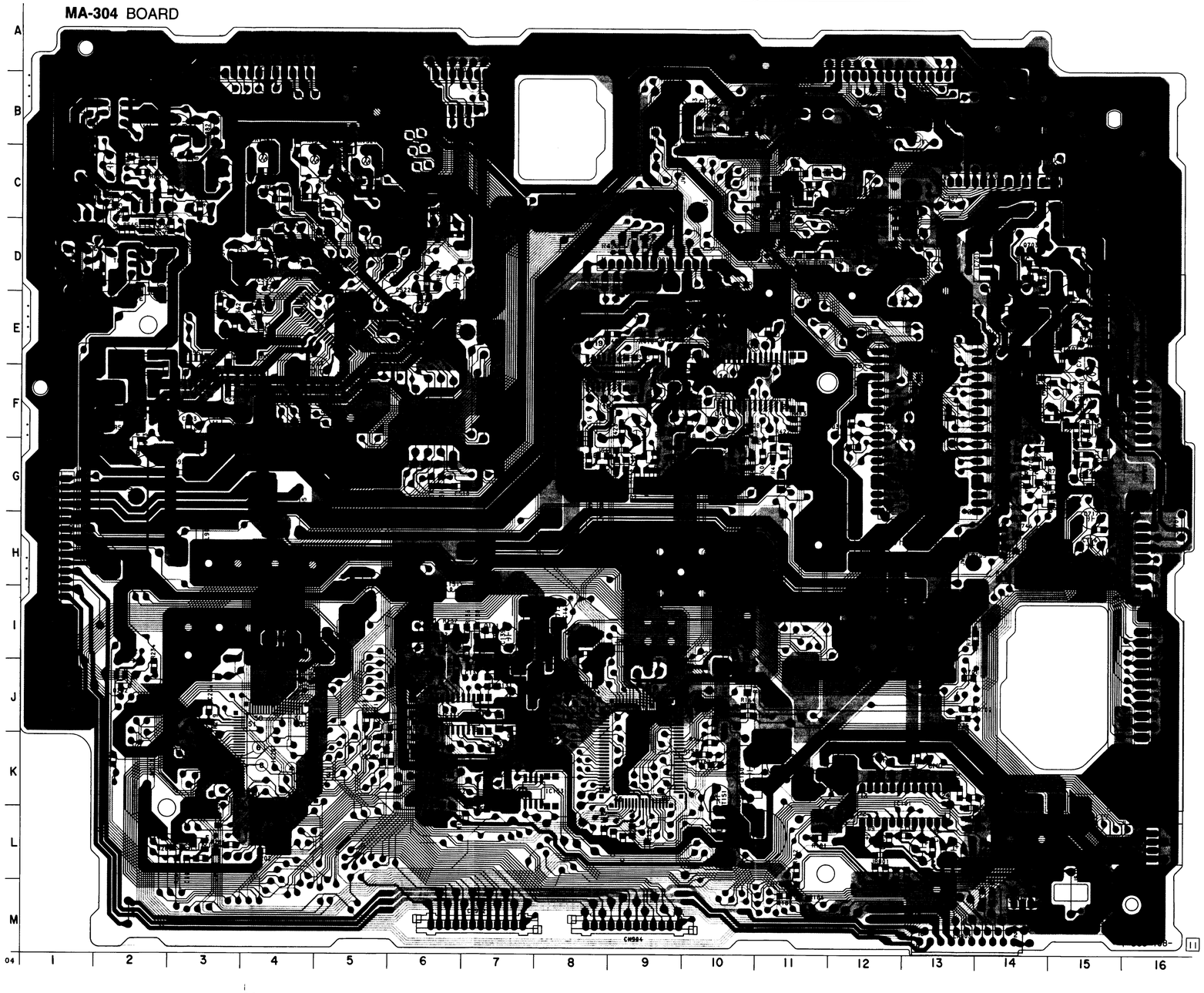
When indicating parts by reference number, please include the board name.

* : indicated by the color red.

MA-304 (VIDEO/AUDIO PROCESS, SERVO/SYSTEM CONTROL, TUNER) PRINTED WIRING BOARD
– Ref. No. MA-304 BOARD : 2,000 series –

• There are few cases that the part isn't mounted in this model is printed on this diagram.

MA-304 BOARD



● **Signal path**

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶	
Drum servo (speed and phase)		▶	
Capstan speed servo		▶	
Capstan phase servo			
Capstan servo (speed and phase)		▶	
Ref. signal	▶		▷

● **Signal path**

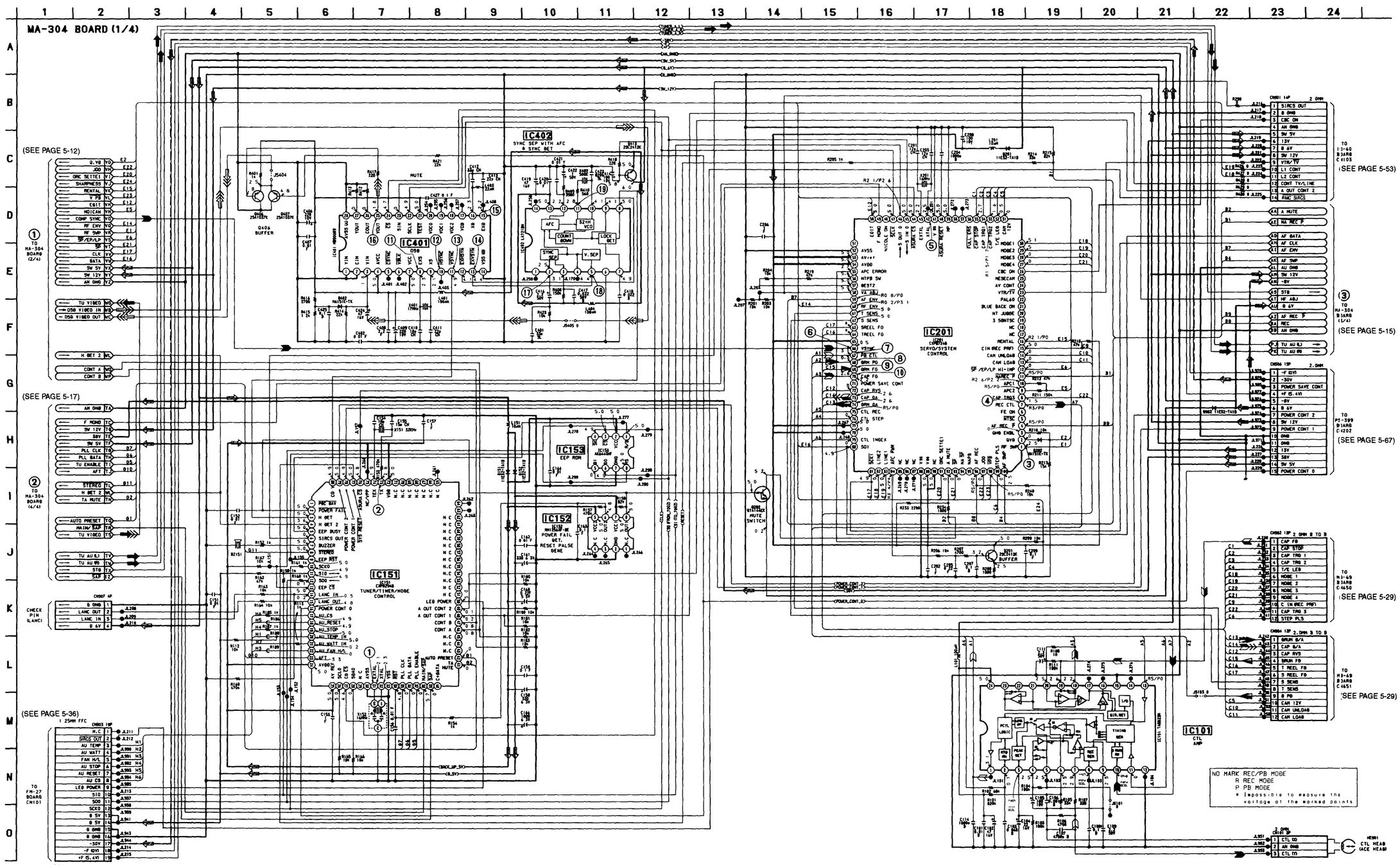
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			▶	▶
PB			▷	

MA-304 BOARD (1/4)

① IC151 (31) REC/PB 4Vp-p (16MHz)	④ IC201 (7) REC 5Vp-p (2V)	⑦ IC201 (67) PB 5Vp-p (2V)	⑩ IC201 (70) REC/PB 4.2Vp-p (1.56kHz)	⑬ IC401 (11) REC/PB 5.4Vp-p (2V)	⑯ IC401 (25) REC/PB 2.1Vp-p (H)	⑲ IC402 (11) REC/PB 0.7Vp-p (500kHz)
② IC151 (73) REC/PB 2.5Vp-p (32kHz)	⑤ IC201 (42) REC/PB 4 4Vp-p (16MHz)	⑧ IC201 (68) REC/PB 5Vp-p (2V)	⑪ IC401 (8) REC/PB 5 9Vp-p (17.7MHz)	⑭ IC401 (13) REC/PB 3.7Vp-p (H)	⑰ IC402 (2) REC/PB 1.3Vp-p (H)	
③ IC201 (1) REC/PB 5Vp-p (2V)	⑥ IC201 (66) REC/PB 4Vp-p (H)	⑨ IC201 (69) REC/PB 5Vp-p (360Hz)	⑫ IC401 (10) REC/PB 6.8Vp-p (H)	⑮ IC401 (15) REC/PB 5.8Vp-p (6.85MHz)	⑱ IC402 (5) REC/PB 3.3Vp-p (2V)	

MA-304 (SERVO/SYSTEM CONTROL, TIMER/TUNER/MODE CONTROL) SCHEMATIC DIAGRAM

– Ref. No. MA-304 BOARD : 2,000 series –



SERVO/SYSTEM/TIMER/TUNER/MODE CONTROL
MA-304 (1/4)

MA-304 (VIDEO PROCESS) SCHEMATIC DIAGRAM

– Ref. No. MA-304 BOARD : 2,000 series –

• **Refer to page 5-6 for printed wiring board.**

MA-304 BOARD (2/4)

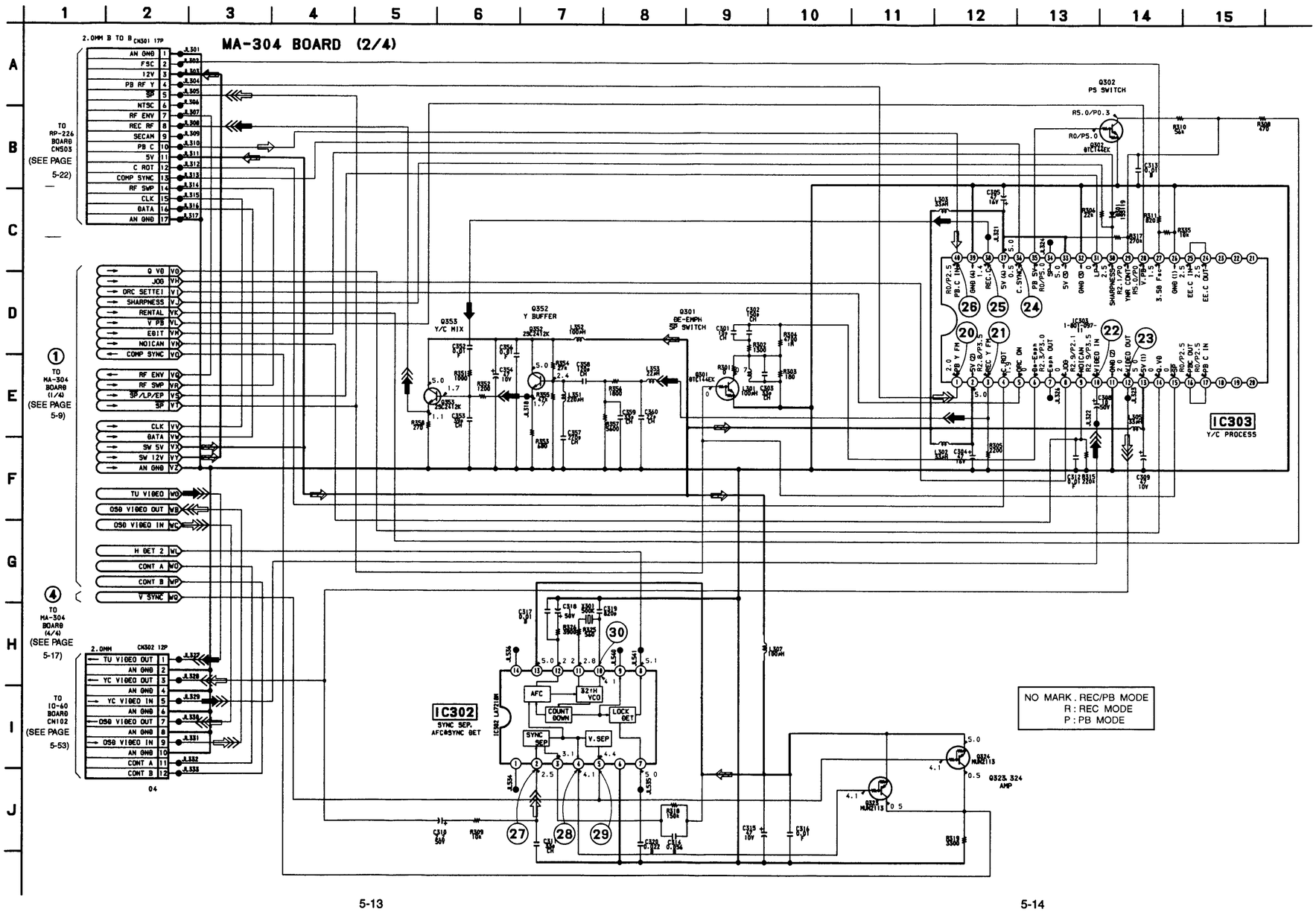
⑳ IC303 ① PB 0.2V/div 1µs/div	㉖ IC303 ㊵ PB 0.5V/div 20µs/div
㉑ IC303 ③ REC 0.5V/div 1µs/div	㉗ IC302 ② REC/PB 1.5Vp-p (H)
㉒ IC303 ⑩ REC 1.1Vp-p (H)	㉘ IC302 ④ REC/PB 4Vp-p (H)
㉓ IC303 ⑫ PB 1.1Vp-p (H)	㉙ IC302 ⑤ REC/PB 4Vp-p (2V)
㉔ IC303 ㊱ REC 4Vp-p (H)	㉚ IC302 ⑩ REC/PB 0.7Vp-p (500kHz)
㉕ IC303 ㊳ REC 190mVp-p (H)	

● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	
PB	⇨	⇨	⇨	

● **Signal path**

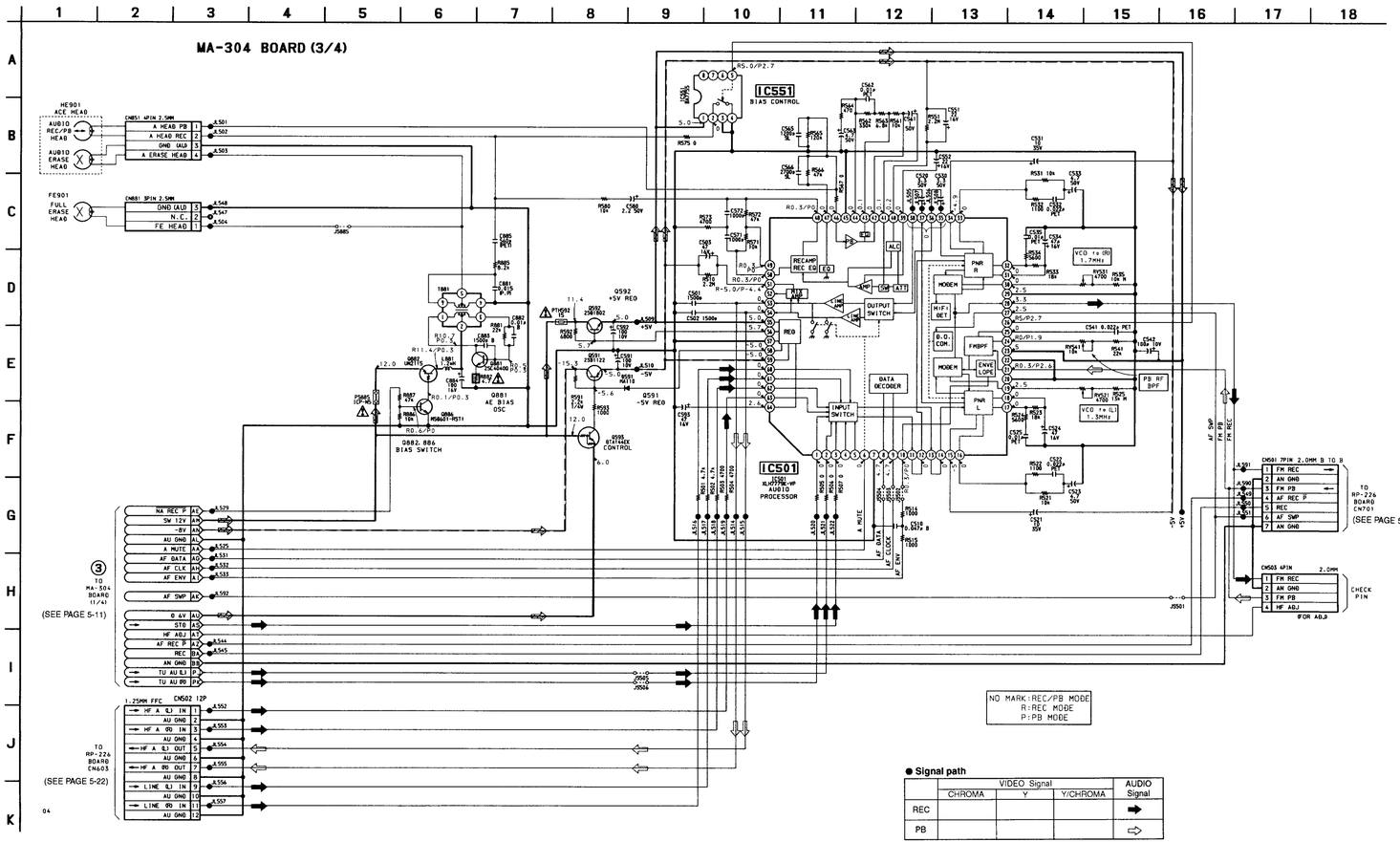
	REC	REC/PB	PB
Ref. signal	➡		

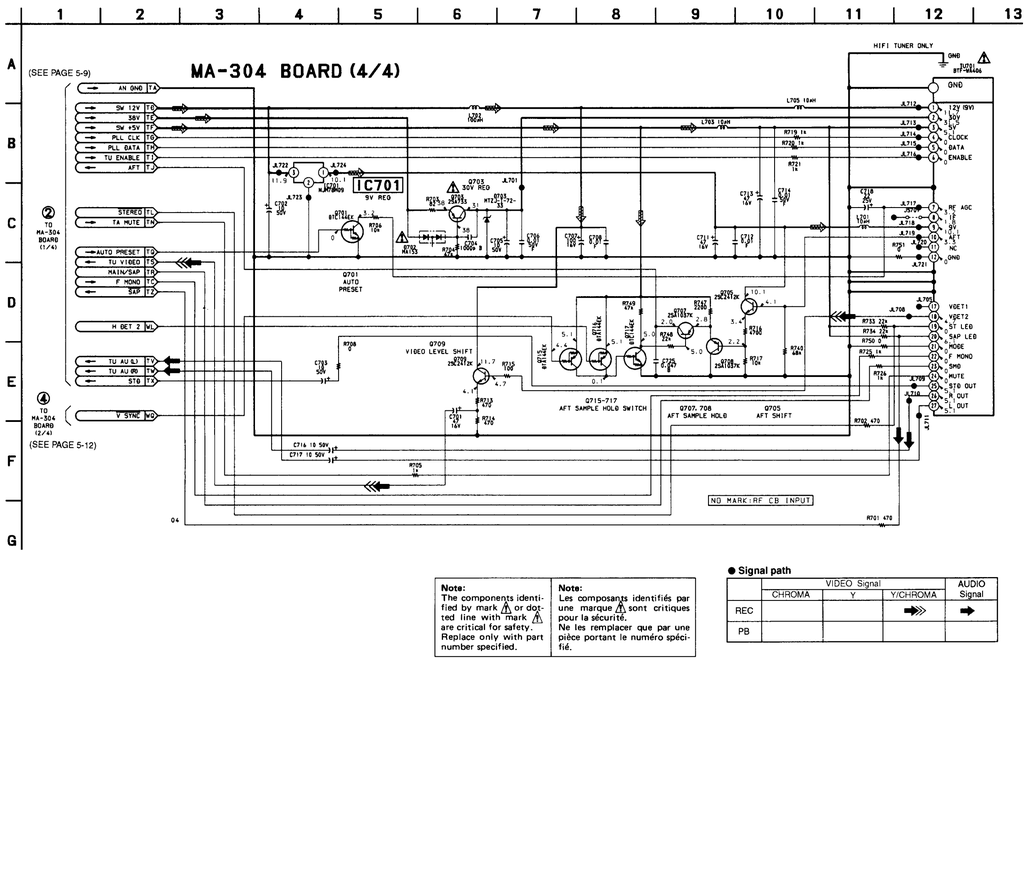


MA-304 (AUDIO PROCESS, TUNER) SCHEMATIC DIAGRAM

– Ref. No. MA-304 BOARD : 2,000 series –

• Refer to page 5-6 for printed wiring board.





Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

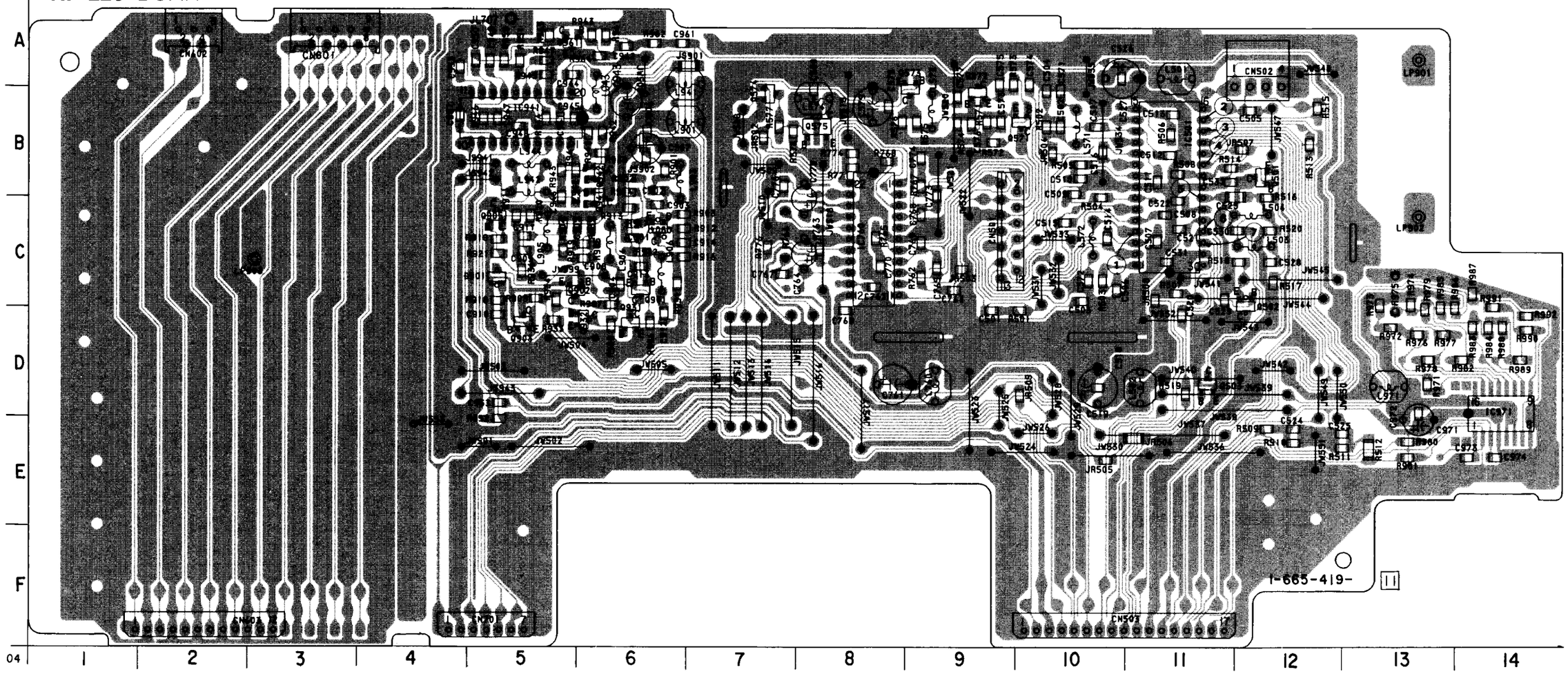
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

RP-226 (HEAD AMP) PRINTED WIRING BOARD

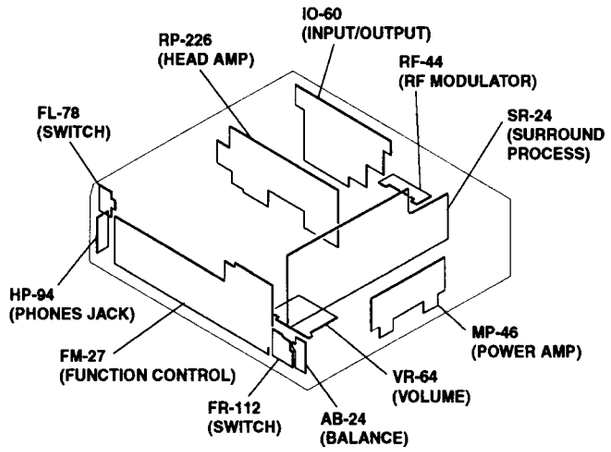
– Ref. No. RP-226 BOARD : 1,000 series –

• There are few cases that the part isn't mounted in this model is printed on this diagram.

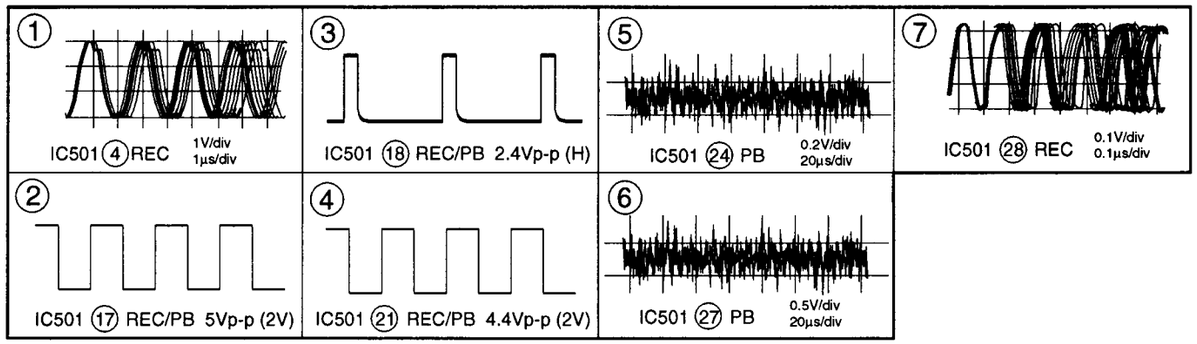
RP-226 BOARD



RP-226 BOARD	
CN501	C-9
CN502	A-12
CN503	F-10
CN601	A-4
CN602	A-2
CN603	F-2
CN701	F-5
IC501	B-11
IC760	C-8
Q501	B-12
Q502	C-12
Q901	C-6
Q904	C-6
Q905	C-5



RP-226 BOARD



RP-226 (HEAD AMP) SCHEMATIC DIAGRAM

– Ref. No. RP-226 BOARD : 1,000 series –

RP-226 BOARD

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

IC501 HA11819SWT
VIDEO REC/PB AMP

IC760
AUDIO
REC/PB AMP

M901
DRUM HEAD

CN501

CN502 4P

CN701 7P

CN503 17P

CN602 5P

CN601 9P

CN603 12P

● Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB	⇨	⇨	⇨	⇨

● Signal path

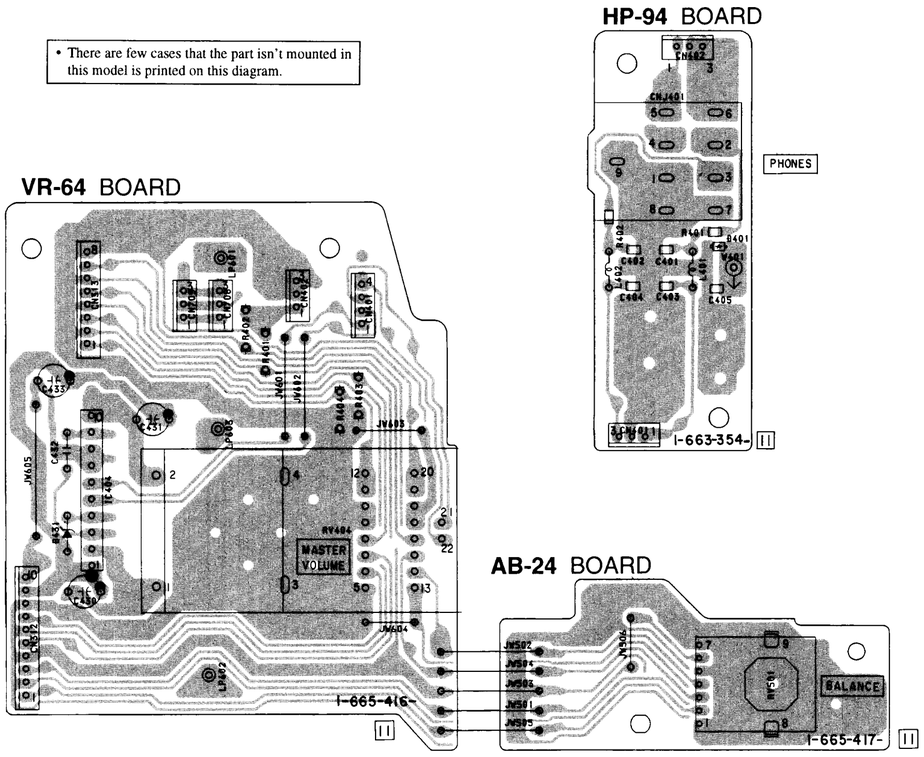
	REC	REC/PB	PB
Ref. signal	➡		

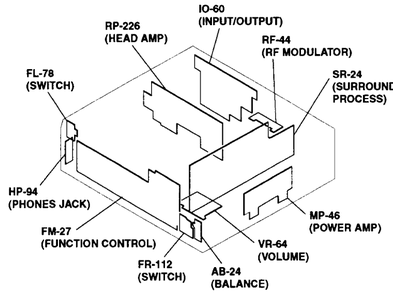
(SEE PAGE 5-17)
(SEE PAGE 5-12)
(SEE PAGE 5-59)
(SEE PAGE 5-53)
(SEE PAGE 5-15)

VR-64 (VOLUME) AB-24 (BALANCE) HP-94 (PHONES JACK) PRINTED WIRING BOARDS

– Ref. No. VR-64 BOARD, AB-24 BOARD, HP-94 BOARD : 5,000 series –

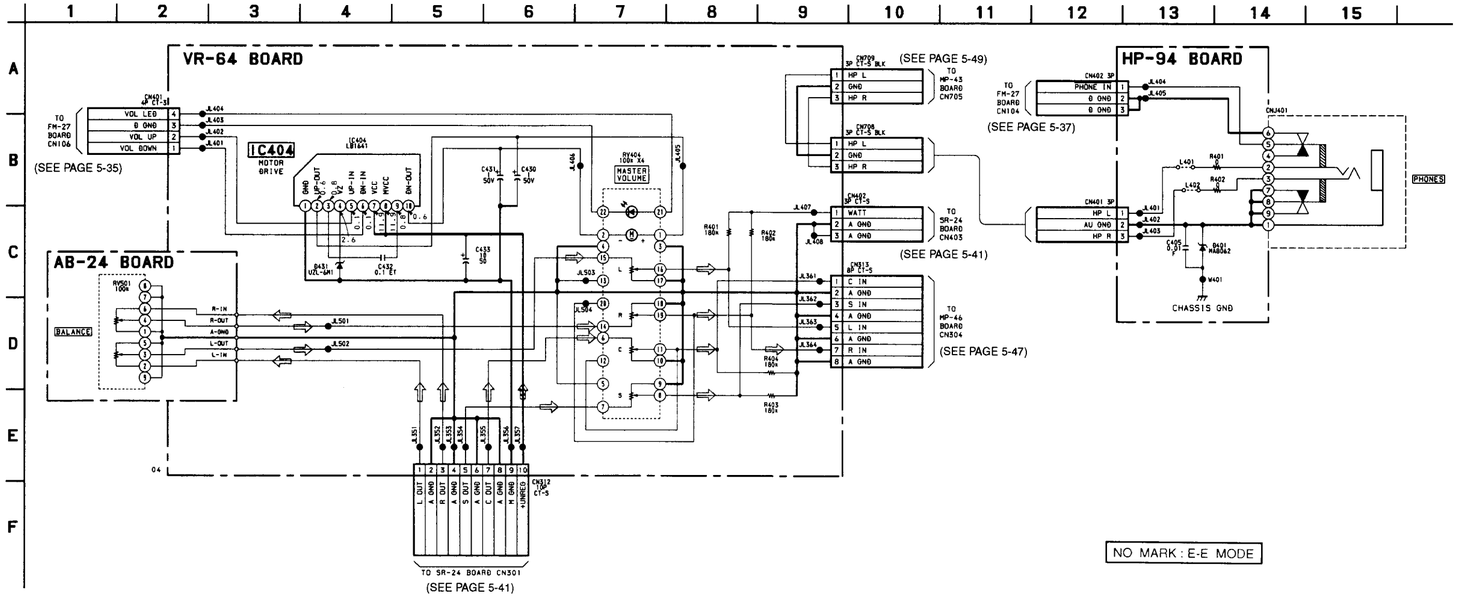
• There are few cases that the part isn't mounted in this model is printed on this diagram.





VR-64 (VOLUME) AB-24 (BALANCE) HP-94 (PHONES JACK) SCHEMATIC DIAGRAMS

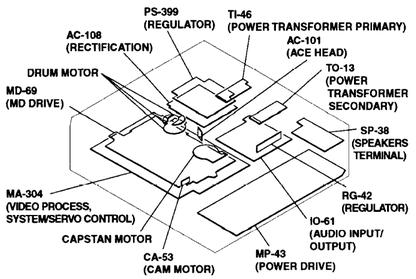
– Ref. No. VR-64 BOARD, AB-24 BOARD, HP-94 BOARD : 5,000 series –



NO MARK : E-E MODE

● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				
PB				⇨

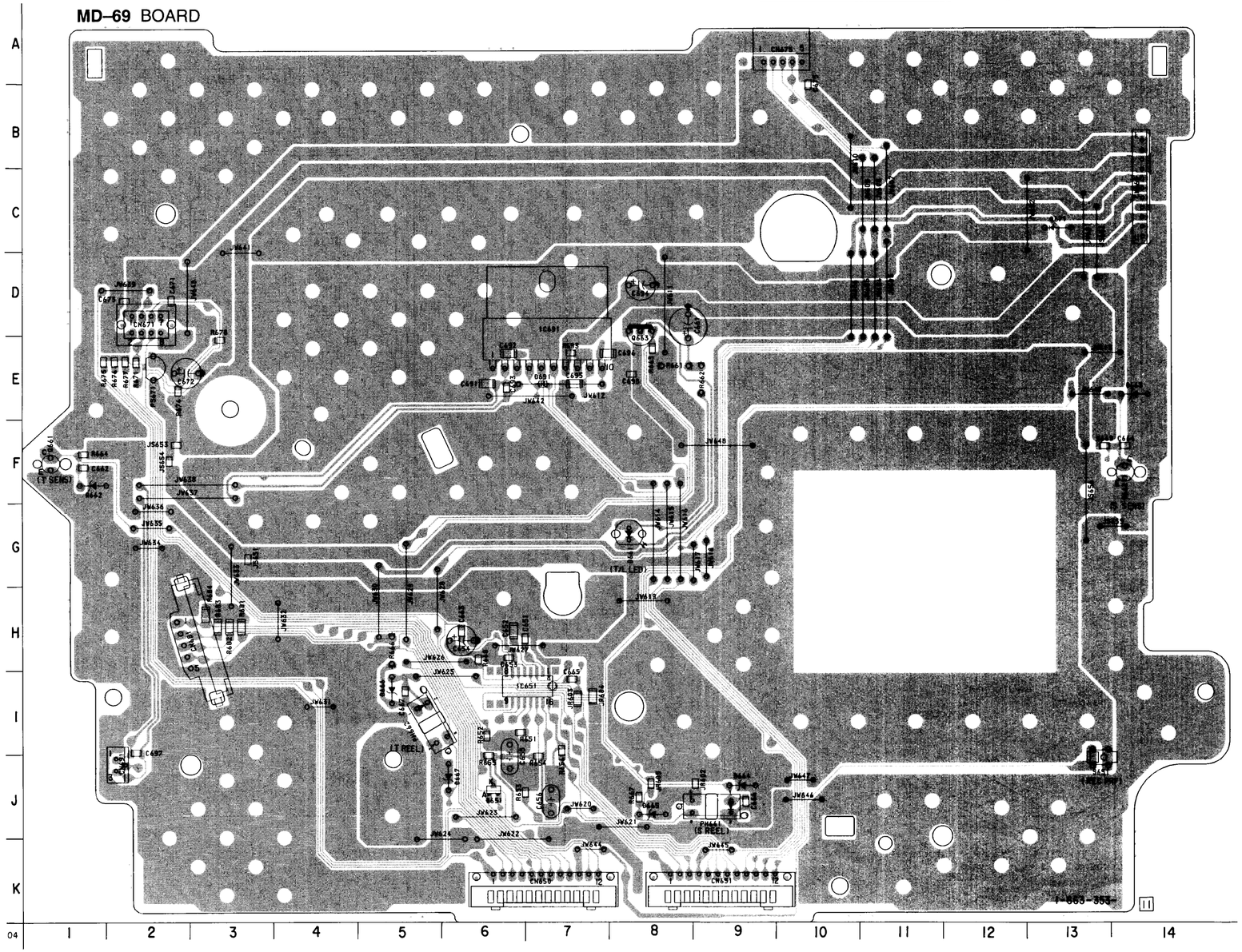


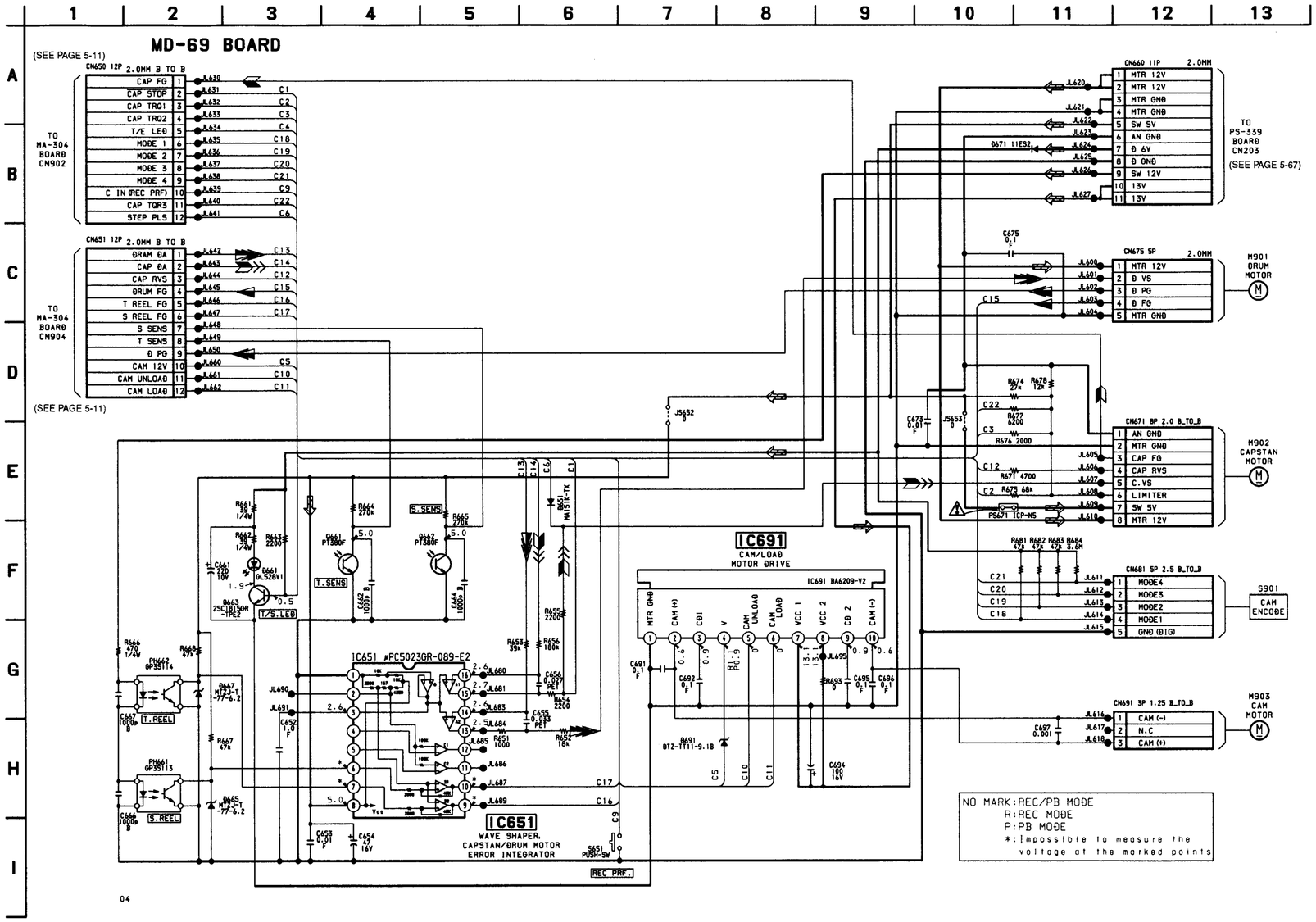
MD-69 (MD DRIVE) PRINTED WIRING BOARD

– Ref. No. MD-69 BOARD : 2,000 series –

MD-69 BOARD	
CN650	K-7
CN651	K-9
CN660	C-14
CN671	D-2
CN675	A-10
CN681	H-3
CN691	J-2
D651	J-6
D661	G-8
D665	J-8
D667	J-6
D671	C-13
D691	E-7
IC651	I-6
IC691	D-7
Q661	F-1
Q662	F-13
Q663	D-8

• There are few cases that the part isn't mounted in this model is printed on this diagram.





● **Signal path**

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶▶	
Drum servo (speed and phase)		▶▶▶	
Capstan speed servo		▶	
Capstan phase servo			
Capstan servo (speed and phase)		▶▶▶	
Ref. signal			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• There are few cases that the part isn't mounted in this model is printed on this diagram.

FM-27 (DISPLAY/FUNCTION/SURROUND AMP CONTROL) FL-78 (SWITCH) FR-112 (SWITCH) PRINTED WIRING BOARDS

– Ref. No. FR-112 BOARD, FL-78 BOARD : 3,000 series, FM-27 BOARD : 4,000 series –

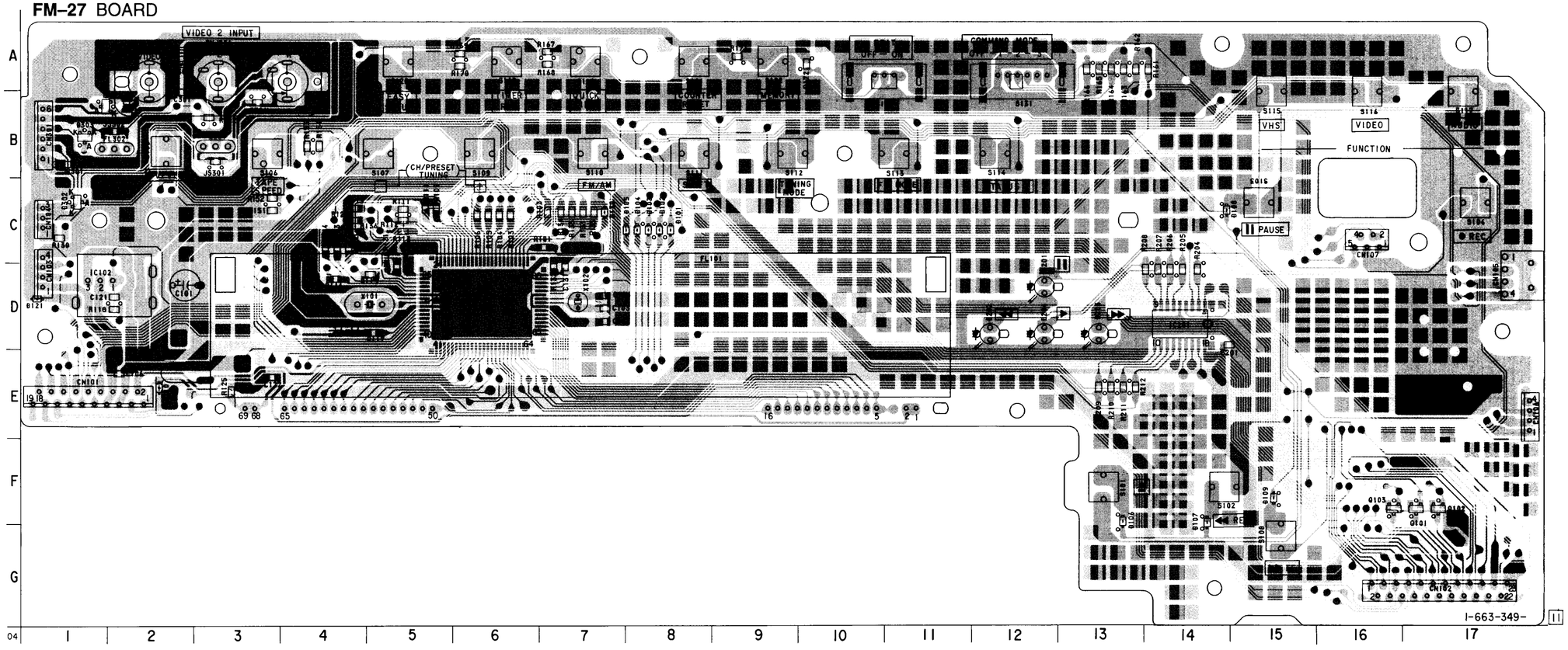
FM-27 BOARD

FM-27 BOARD
CN101 E-1
CN102 G-17
CN105 D-17
CN107 C-16
CN301 B-1

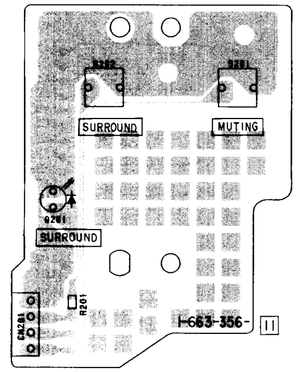
D101 C-8
D102 C-8
D103 C-8
D104 C-8
D105 C-8
D106 F-13
D107 F-14
D108 C-14
D109 F-15
D110 E-2
D130 C-7
D201 D-12
D202 D-12
D203 D-13
D204 D-12
D301 B-2
D302 C-1
D303 B-1
D304 A-2

IC101 D-6
IC102 D-1
IC201 D-14

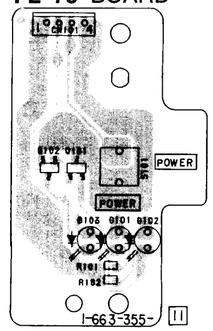
Q101 F-17
Q102 F-17
Q103 F-16

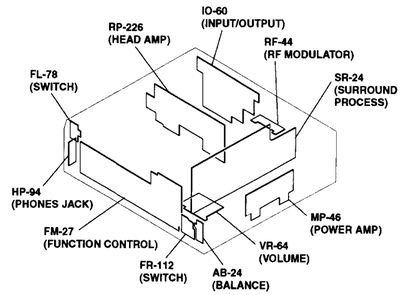


FR-112 BOARD



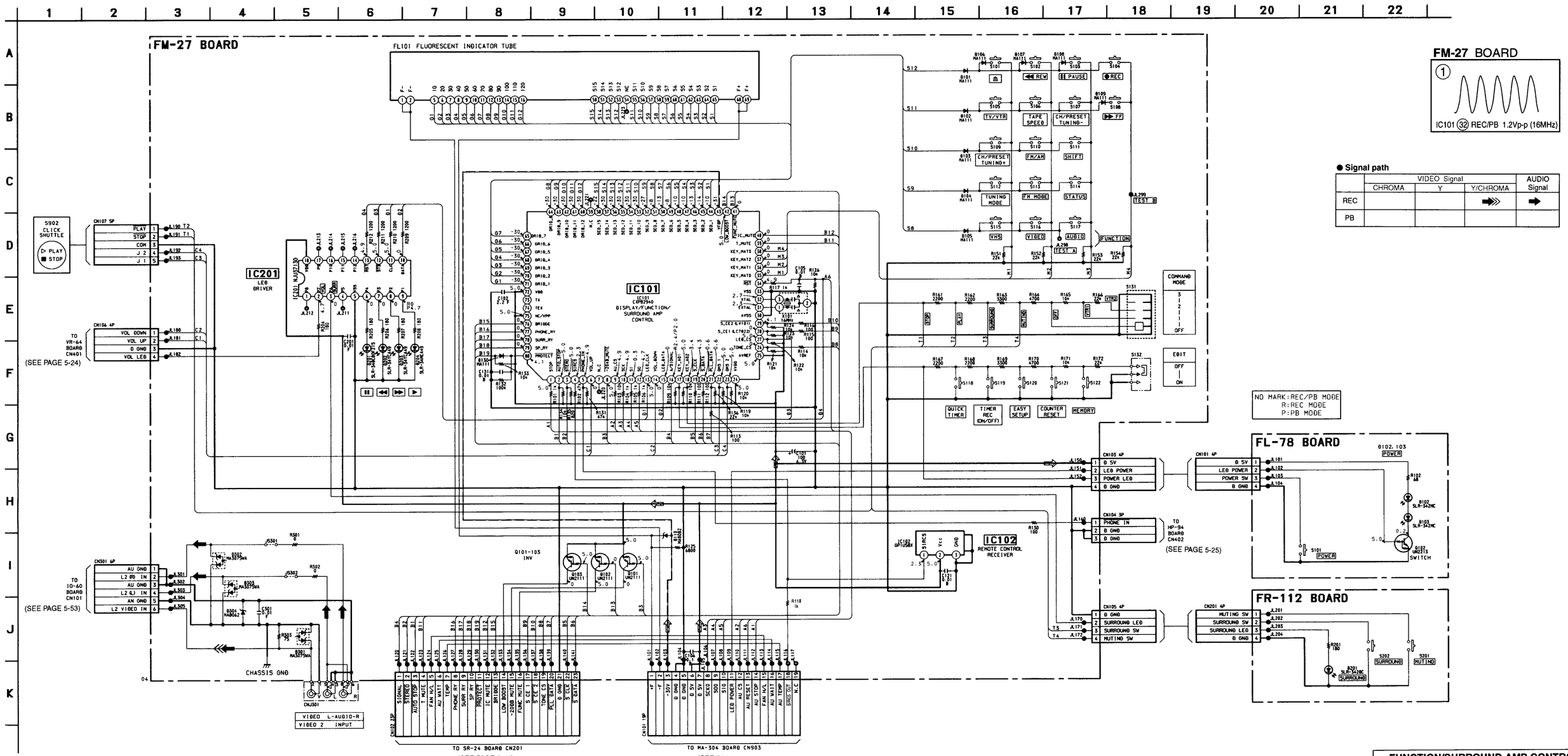
FL-78 BOARD





FM-27 (DISPLAY/FUNCTION/SURROUND AMP CONTROL) FL-78 (SWITCH) FR-112 (SWITCH) SCHEMATIC DIAGRAMS

– Ref. No. FR-112 BOARD, FL-78 BOARD : 3,000 series, FM-27 BOARD : 4,000 series –



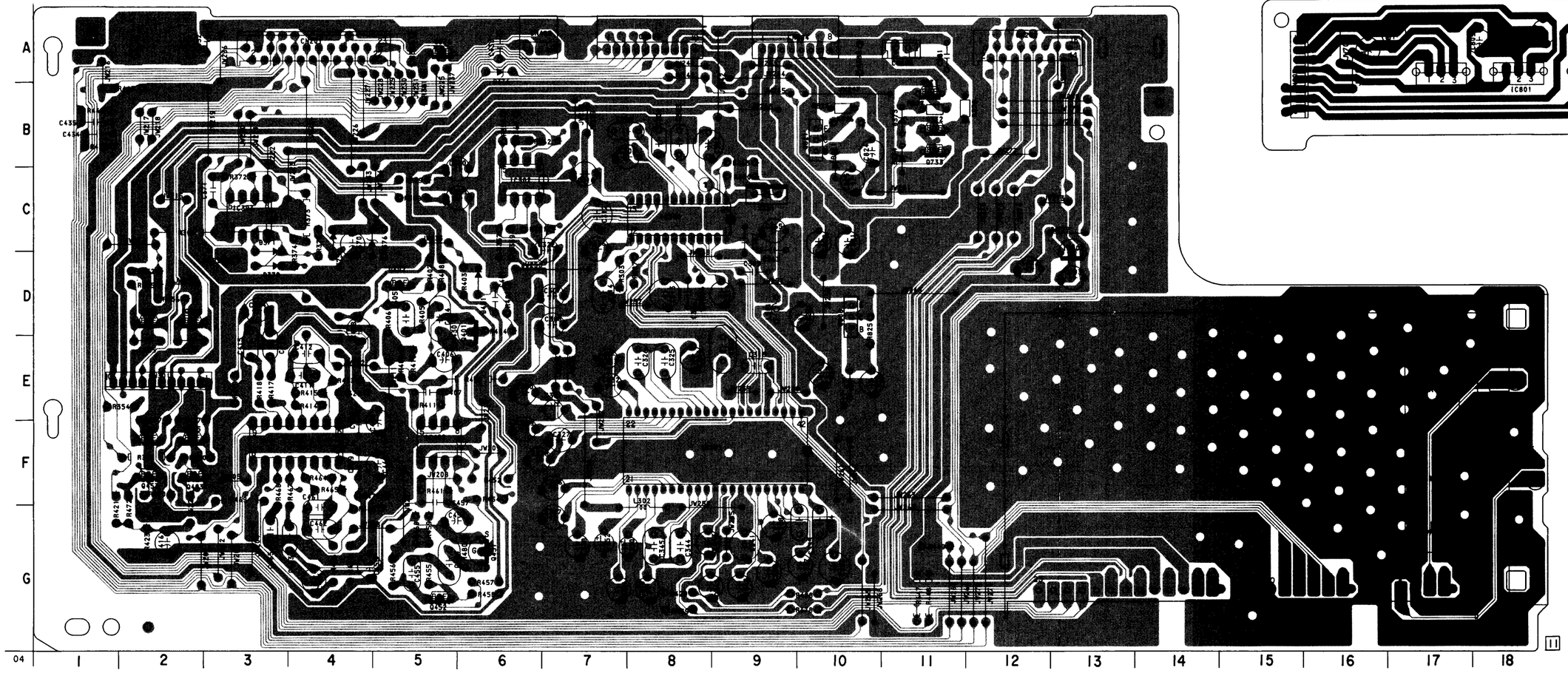
FUNCTION/SURROUND AMP CONTROL
FM-27, FL-78, FR-112

SR-24 (SURROUND PROCESS) RG-42 (REGULATOR) PRINTED WIRING BOARDS

– Ref. No. SR-24 BOARD, RG-42 BOARD : 5,000 series –

• There are few cases that the part isn't mounted in this model is printed on this diagram.

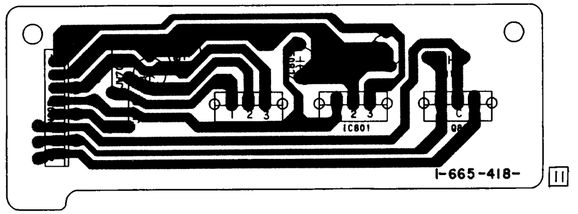
SR–24 BOARD

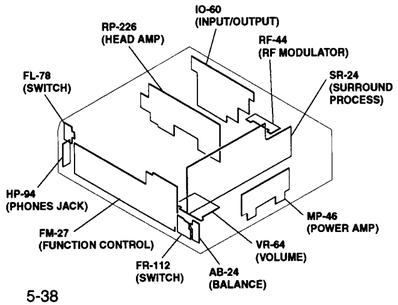


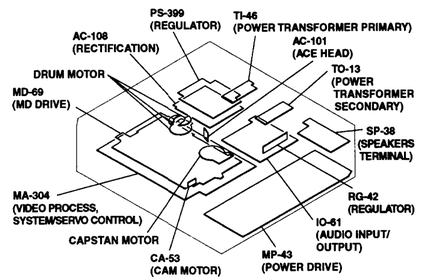
SR-24 BOARD

CN201	A-4
CN202	A-12
CN301	E-2
CN403	A-6
CN803	A-8
CN804	A-9
CN805	A-11
D370	D-3
D371	C-3
D372	C-5
D373	B-11
D374	B-11
D375	C-4
D376	A-6
D401	D-6
D817	E-10
D821	B-10
IC300	C-8
IC301	F-8
IC302	C-6
IC303	C-3
IC401	F-4
IC402	F-5
IC403	C-13
Q305	F-2
Q306	F-2
Q307	D-2
Q308	D-2
Q371	B-11
Q372	B-11
Q374	A-5
Q401	D-6
Q402	D-5
Q403	F-2
Q451	G-6
Q452	G-5
Q453	F-2
Q733	B-11
Q808	D-10
Q821	B-10

RG-42 BOARD



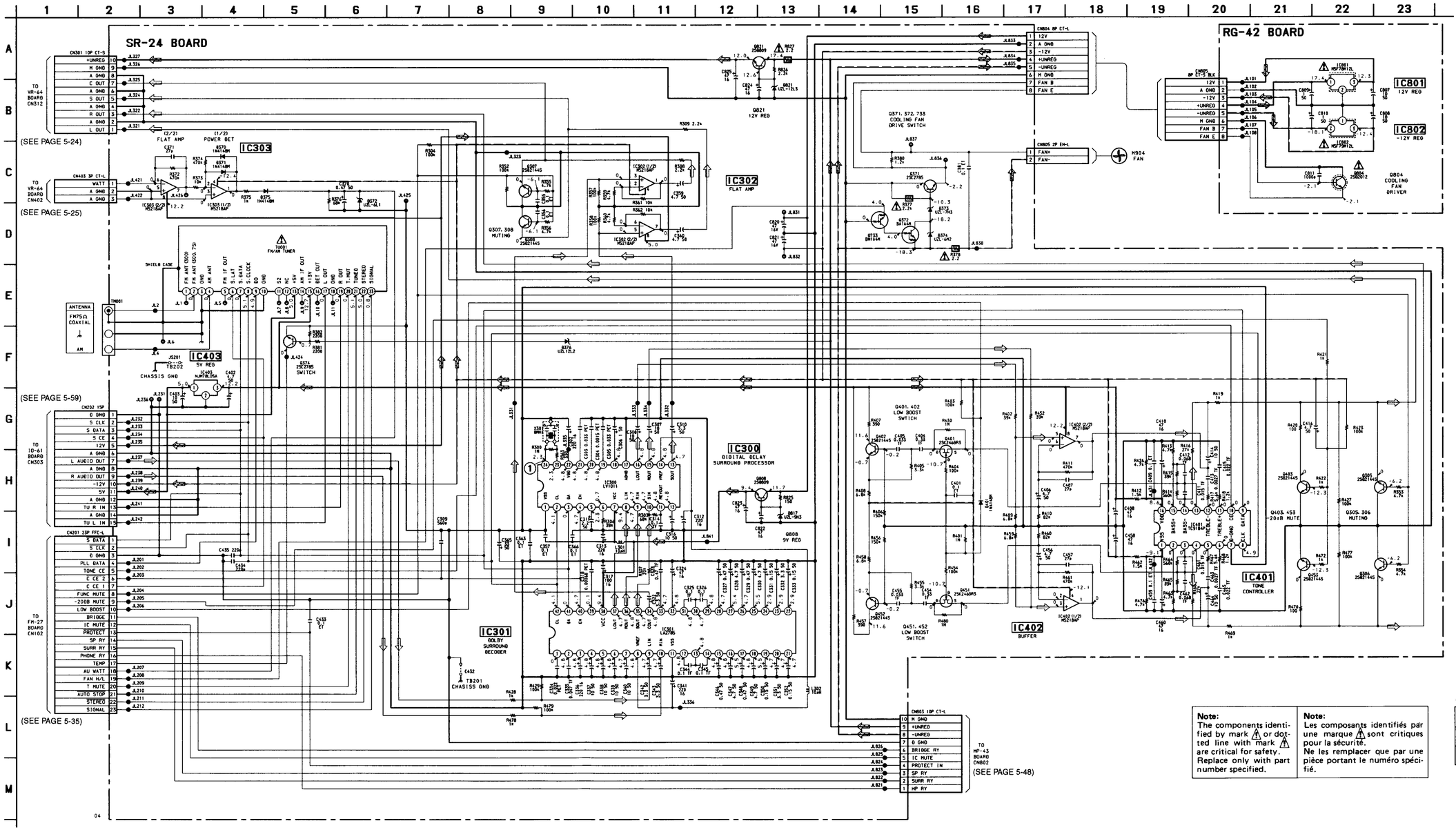




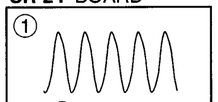
SURROUND PROCESS
SR-24, RG-42

SR-24 (SURROUND PROCESS) RG-42 (REGULATOR) SCHEMATIC DIAGRAMS

– Ref. No. SR-24 BOARD, RG-42 BOARD : 5,000 series –



SR-24 BOARD



Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

● **Signal path**

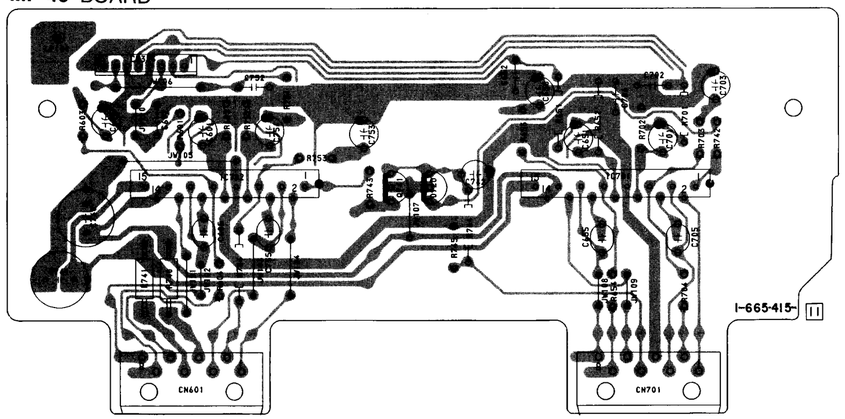
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				
PB				⇨

MP-43 (POWER DRIVE) MP-46 (POWER AMP) SP-38 (SP TERMINAL) PRINTED WIRING BOARDS

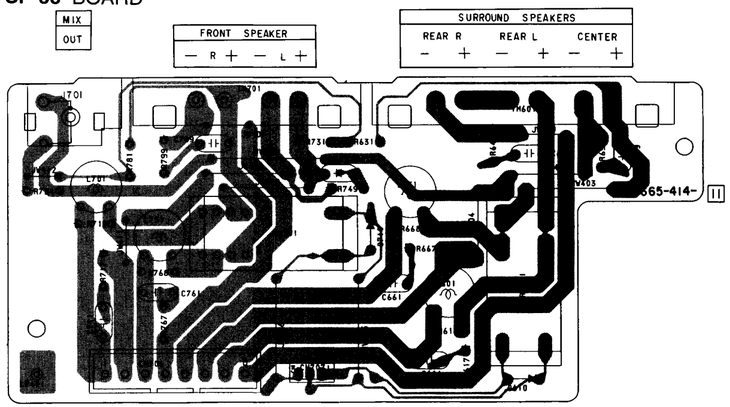
– Ref. No. MP-43 BOARD, MP-46 BOARD, SP-38 BOARD : 6,000 series –

• There are few cases that the part isn't mounted in this model is printed on this diagram.

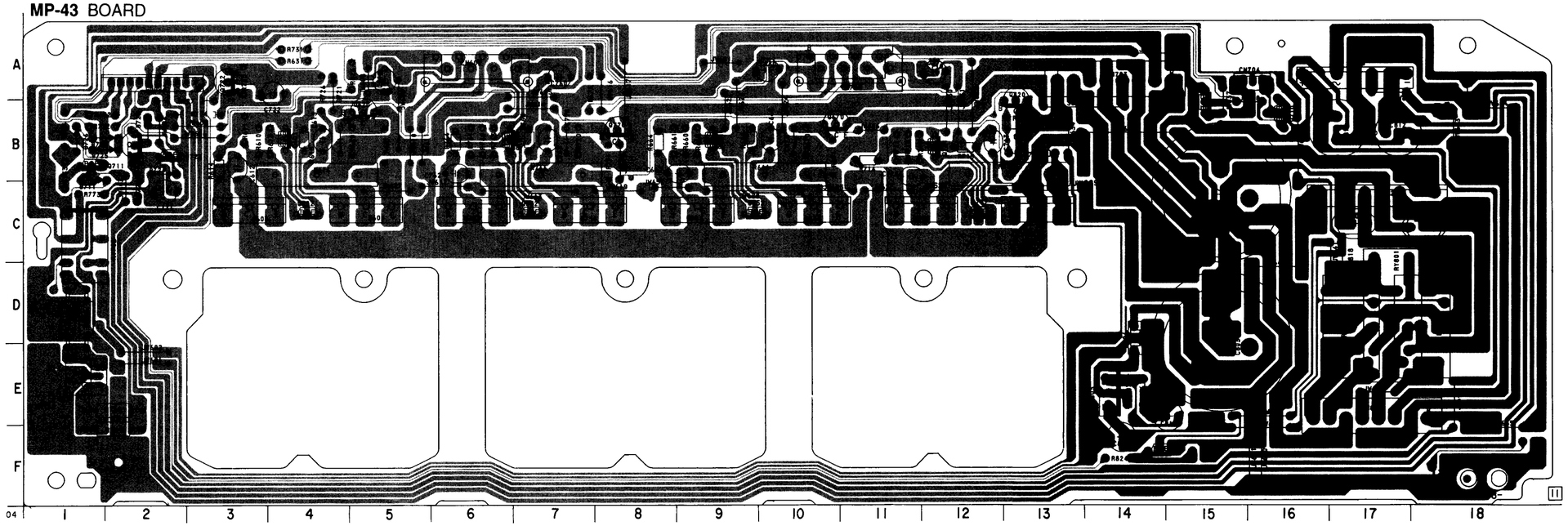
MP-46 BOARD



SP-38 BOARD

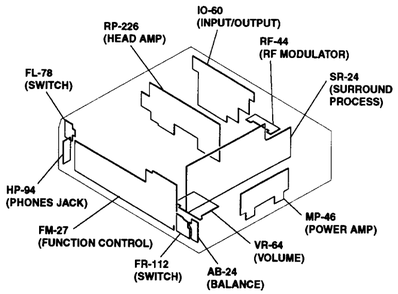


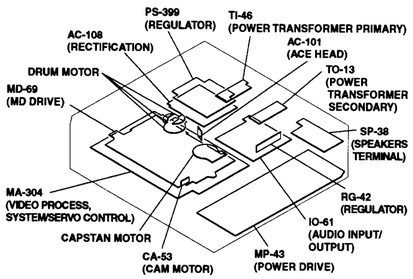
MP-43 BOARD



MP-43 BOARD

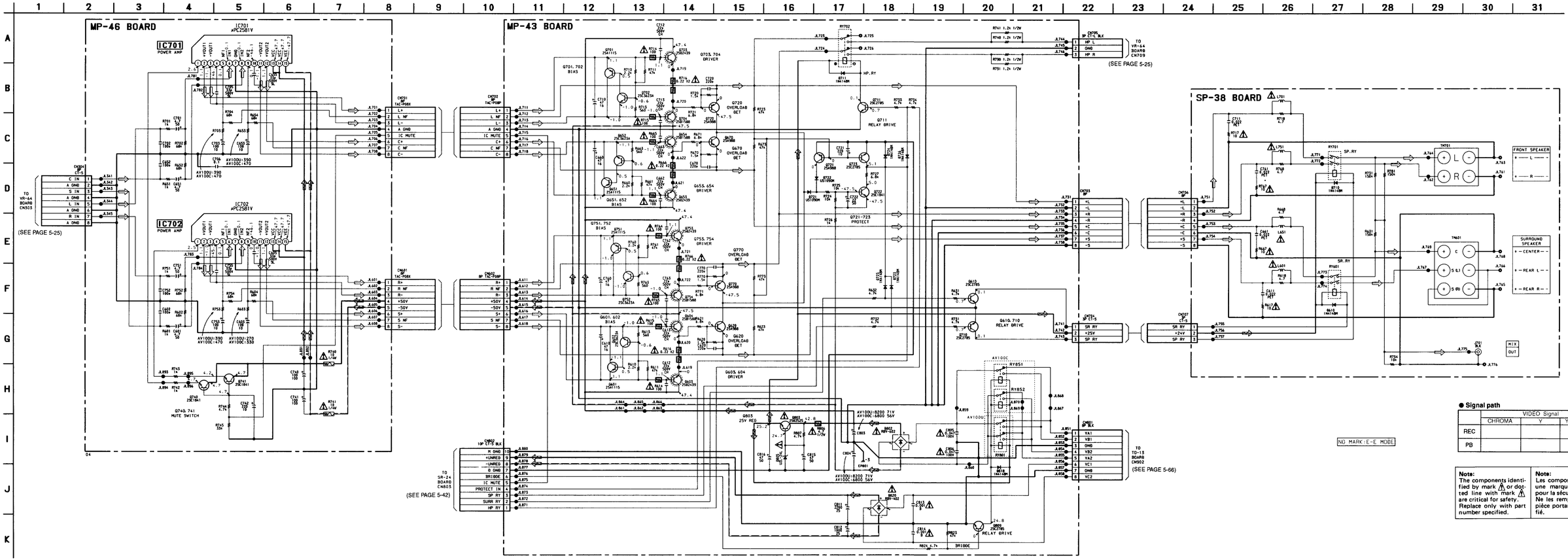
CN602	A-6
CN702	A-11
CN703	A-14
CN704	A-16
CN705	E-1
CN801	E-17
CN802	A-2
D711	C-1
D721	A-4
D722	B-2
D723	B-2
D724	B-2
D725	B-2
D726	B-1
D802	C-17
D805	E-14
D818	C-17
D820	A-17
Q601	B-4
Q602	C-4
Q603	C-3
Q604	C-5
Q610	B-15
Q620	B-5
Q651	B-9
Q652	C-9
Q653	C-9
Q654	C-10
Q670	B-10
Q701	B-12
Q702	C-12
Q703	C-11
Q704	C-13
Q710	B-16
Q711	B-1
Q720	B-13
Q721	B-2
Q722	A-3
Q723	B-2
Q751	B-6
Q752	C-7
Q753	C-6
Q754	C-7
Q770	B-8
Q803	E-14
Q809	F-14





MP-43 (POWER DRIVE) MP-46 (POWER AMP) SP-38 (SP TERMINAL) SCHEMATIC DIAGRAMS

– Ref. No. MP-43 BOARD, MP-46 BOARD, SP-38 BOARD : 6,000 series –



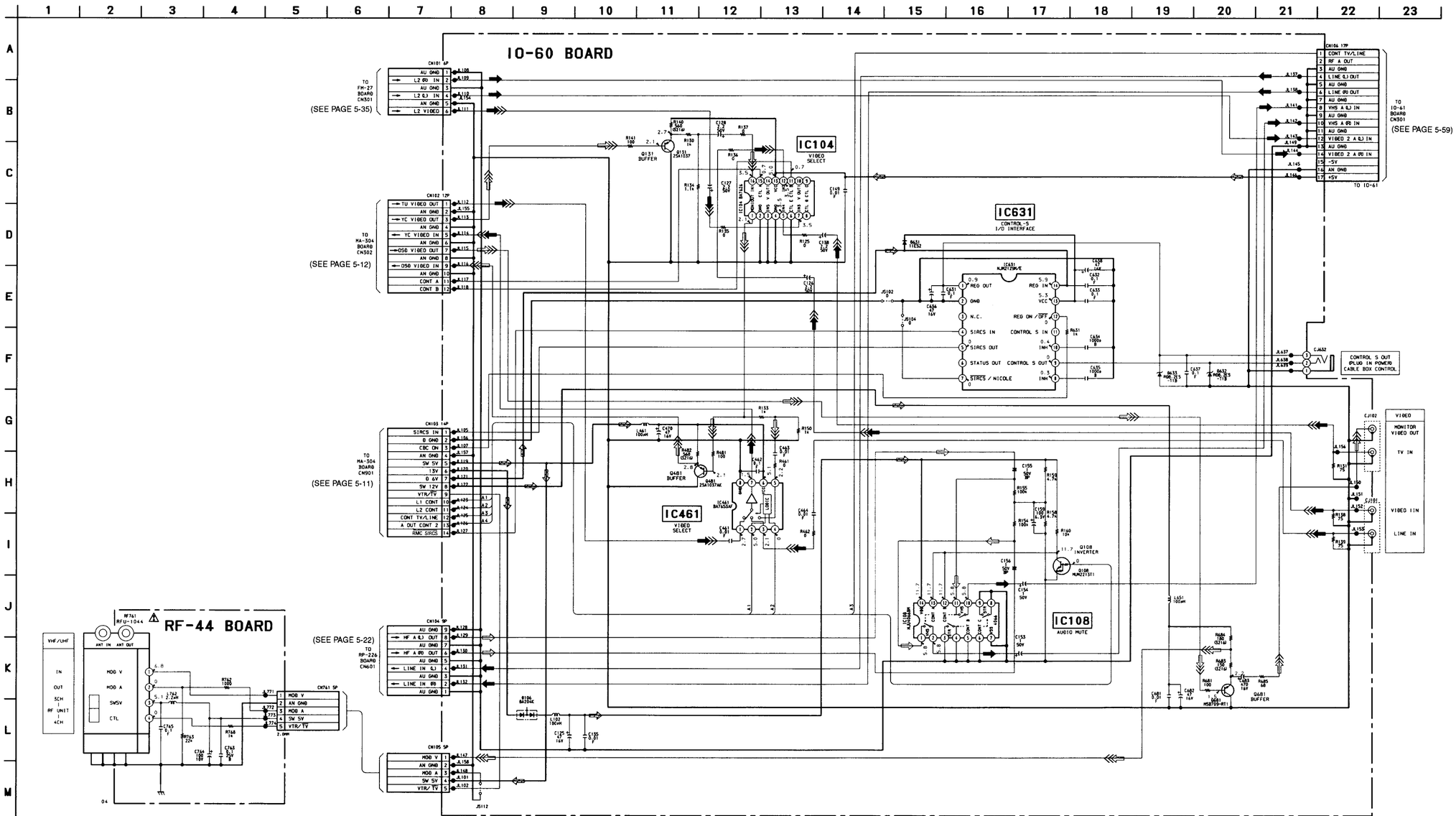
● Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				
PB				⇨

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

IO-60 (VIDEO/AUDIO INPUT/OUTPUT) RF-44 (RF MODULATOR)
SCHEMATIC DIAGRAMS
– Ref. No. IO-60 BOARD, RF-44 BOARD : 7,000 series –



● Signal path

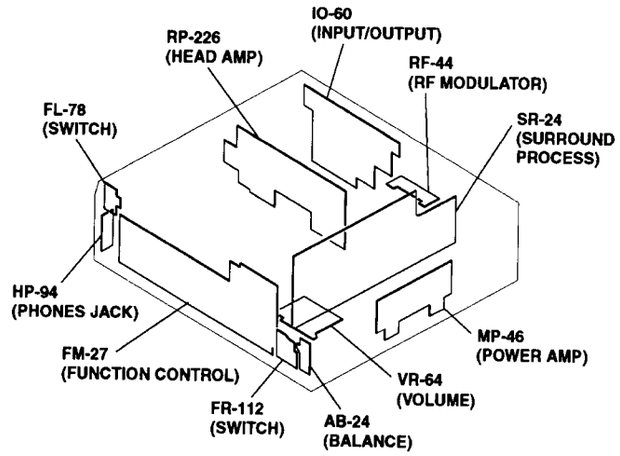
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➠	➡
PB			⇨	⇨

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

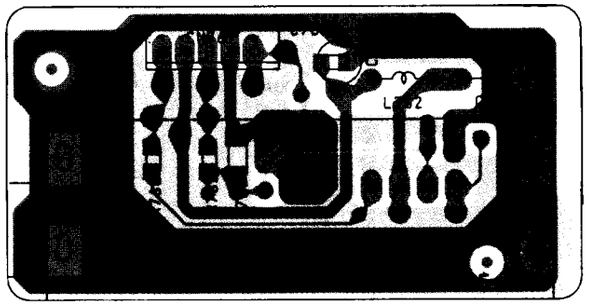
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

IO-60 (VIDEO/AUDIO INPUT/OUTPUT) RF-44 (RF MODULATOR) PRINTED WIRING BOARDS

– Ref. No. IO-60 BOARD, RF-44 BOARD : 7,000 series –



RF-44 BOARD



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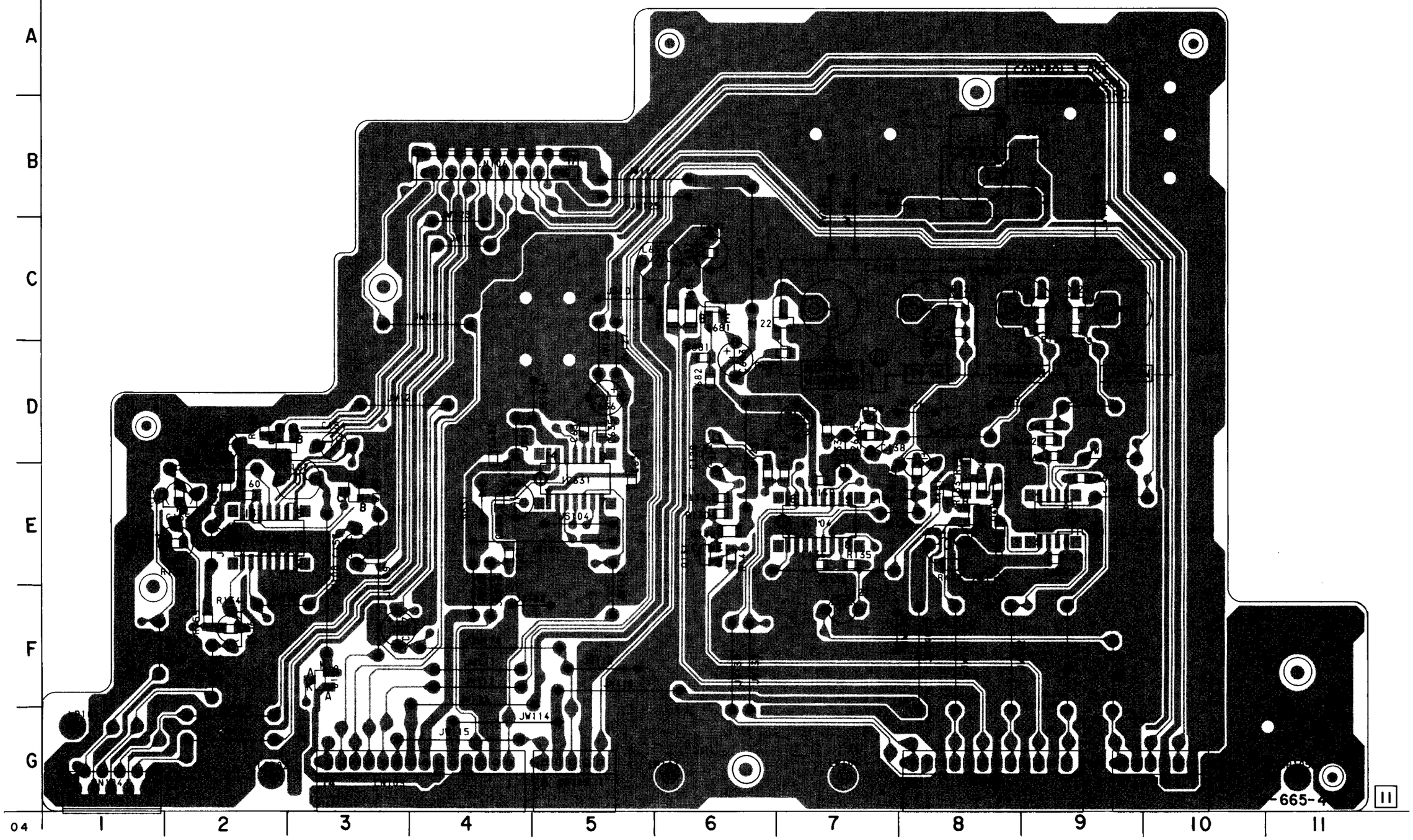
• There are few cases that the part isn't mounted in this model is printed on this diagram.

IO-60 BOARD

IO-60 BOARD

CN101	G-10
CN102	G-8
CN103	G-3
CN104	G-1
CN105	G-5
CN106	B-4
D106	F-3
D631	E-4
D632	B-7
D633	B-9
IC104	E-7
IC108	E-2
IC461	E-9
IC631	E-5
Q108	E-3
Q131	E-6
Q481	E-8
Q681	C-6



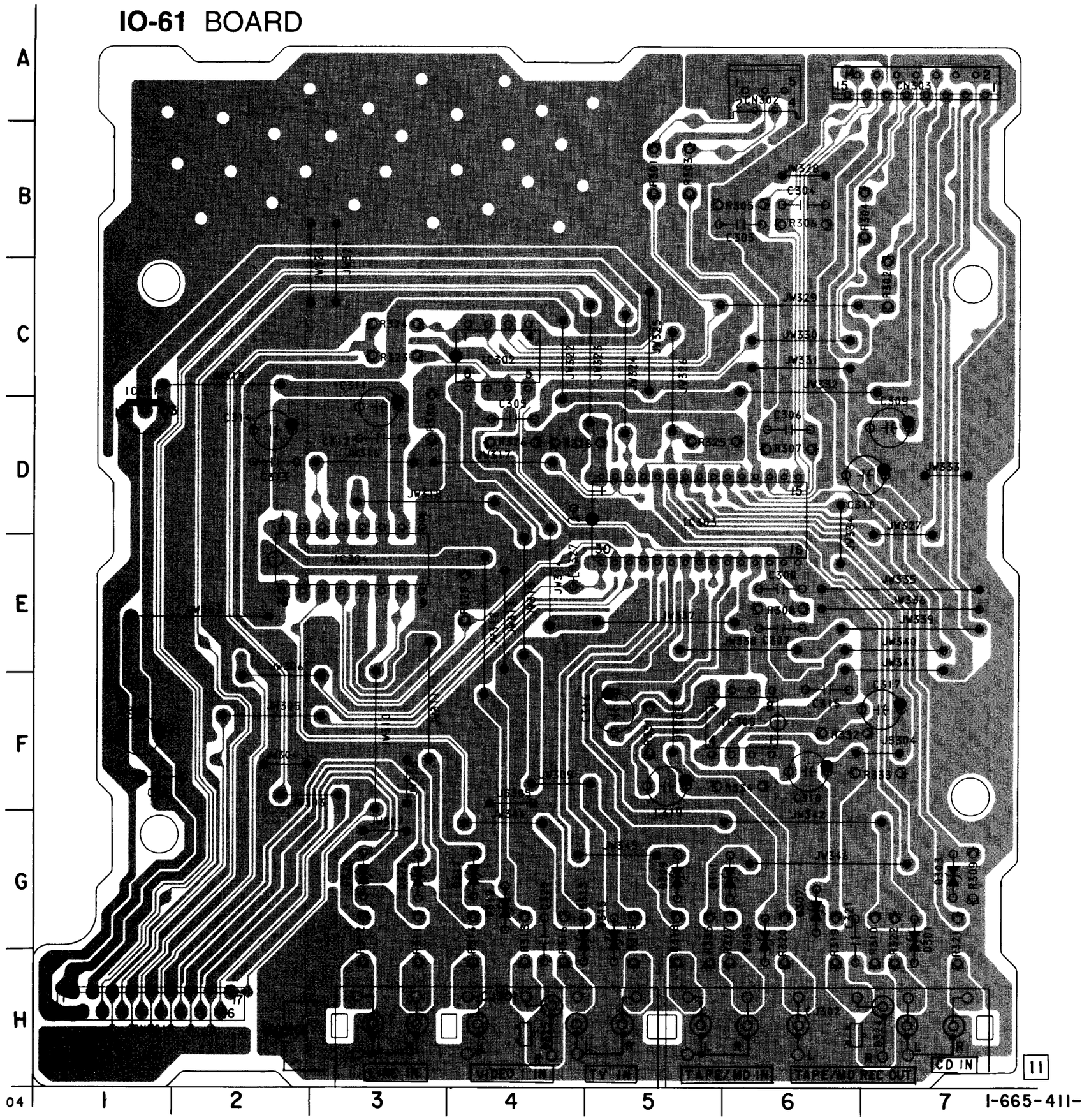
IO-61 (AUDIO INPUT/OUTPUT) PRINTED WIRING BOARD

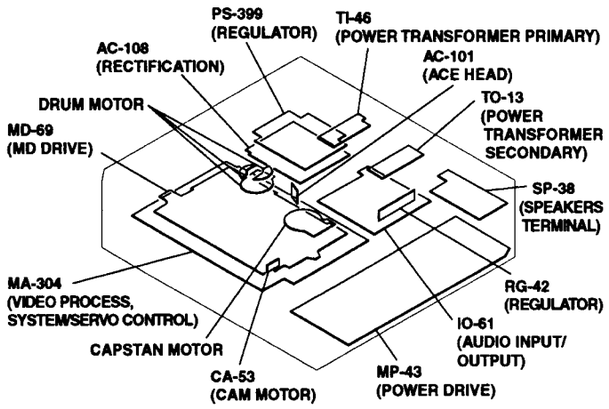
– Ref. No. IO-61 BOARD : 7,000 series –

• There are few cases that the part isn't mounted in this model is printed on this diagram.

IO-61 BOARD

CN301	H-1
CN302	A-6
CN303	A-7
IC301	D-1
IC302	C-4
IC303	D-5
IC304	E-3

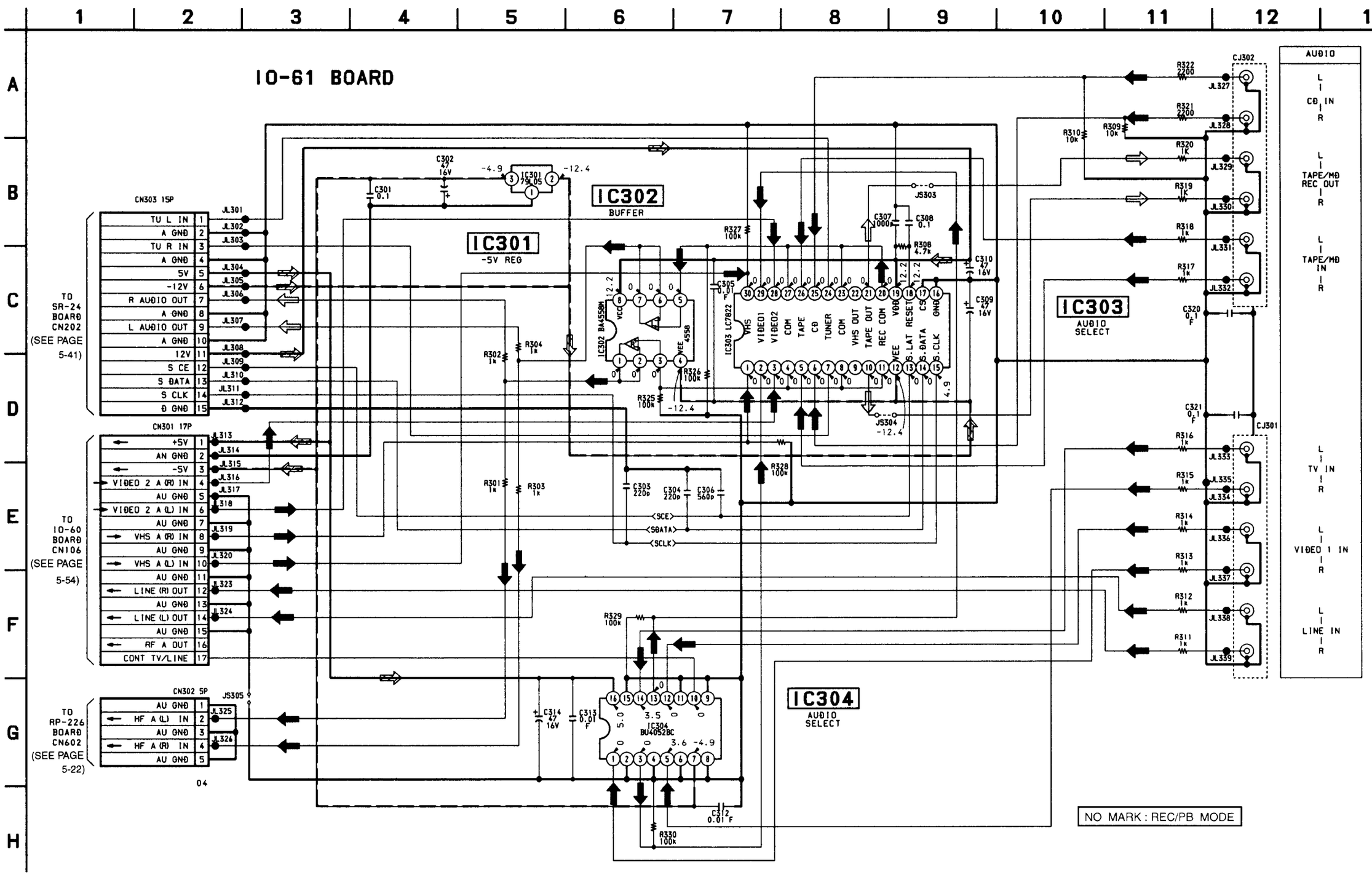




AUDIO INPUT/OUTPUT
IO-61

IO-61 (AUDIO INPUT/OUTPUT) SCHEMATIC DIAGRAM

– Ref. No. IO-61 BOARD : 7,000 series –



● **Signal path**

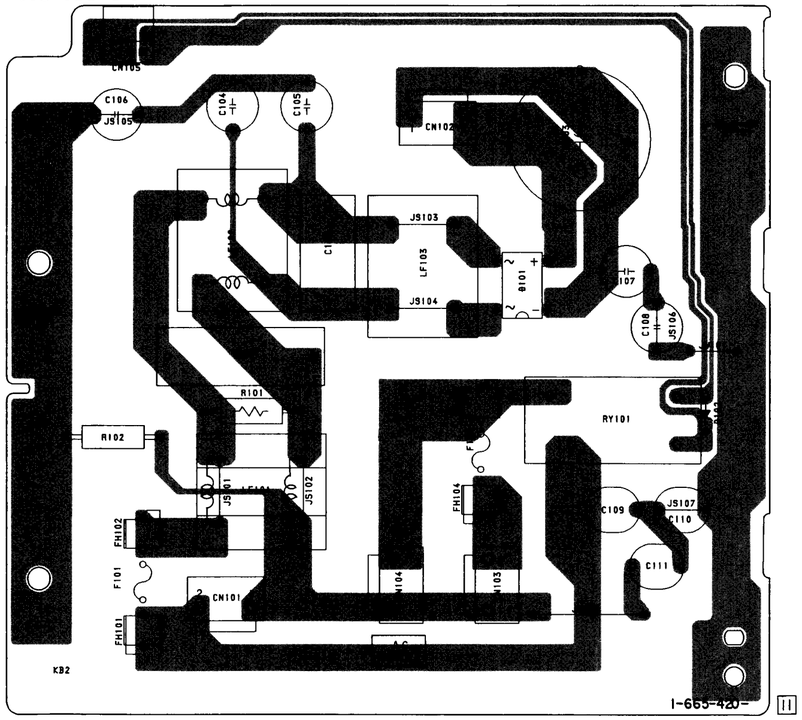
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

• There are few cases that the part isn't mounted in this model is printed on this diagram.

AC-108 (RECTIFICATION) PS-399 (REGULATOR) TI-46 (POWER TRANSFORMER PRIMARY) TO-13 (POWER TRANSFORMER SECONDARY) PRINTED WIRING BOARDS

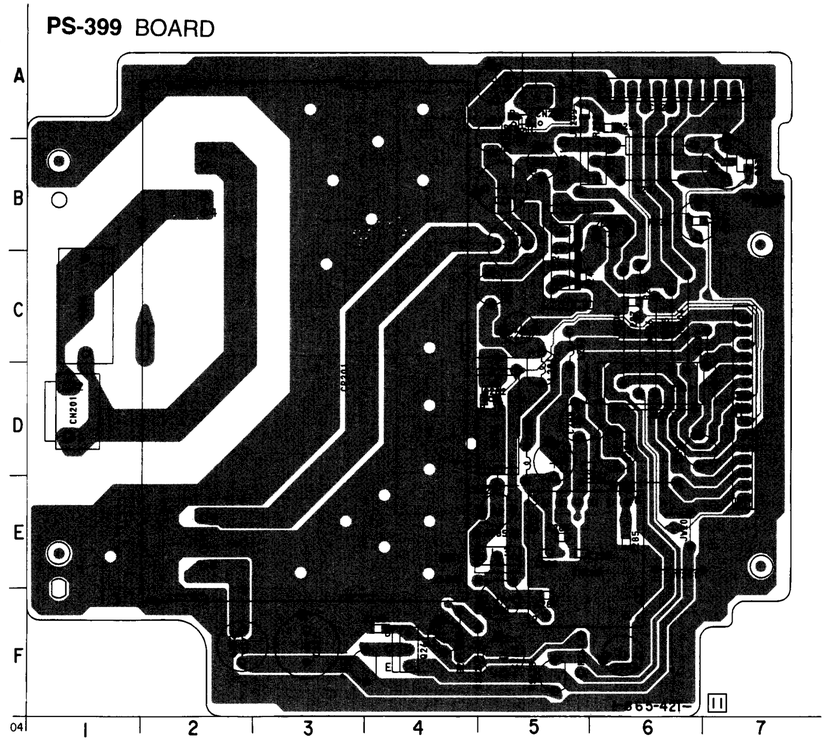
– Ref. No. AC-108 BOARD, PS-399 BOARD, TI-46 BOARD, TO-13 BOARD : 8,000 series –

AC-108 BOARD



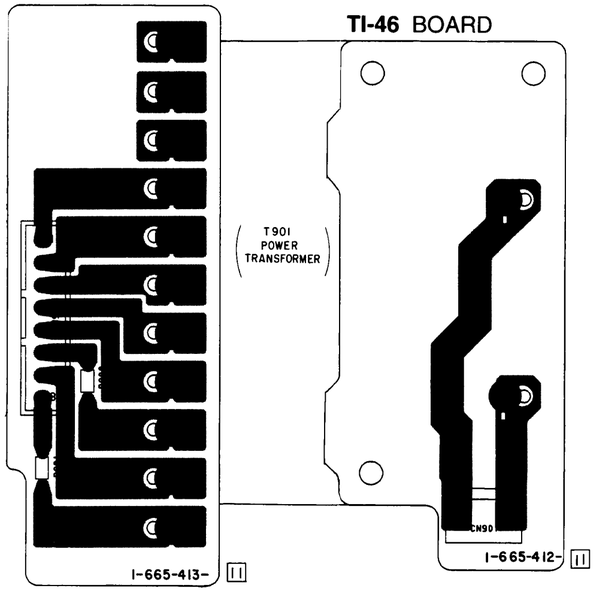
PS-399 BOARD

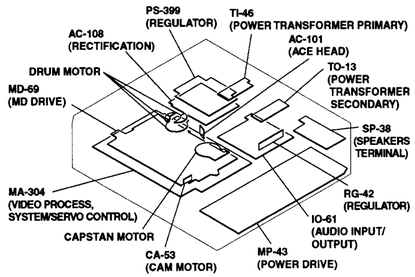
PS-399 BOARD	
CN201	D-1
CN202	D-7
CN203	A-6
CN204	A-5
D231	B-6
D261	F-4
D262	F-4
IC241	B-5
Q231	B-5
Q232	B-7
Q261	F-4
Q291	A-5



TO-13 BOARD

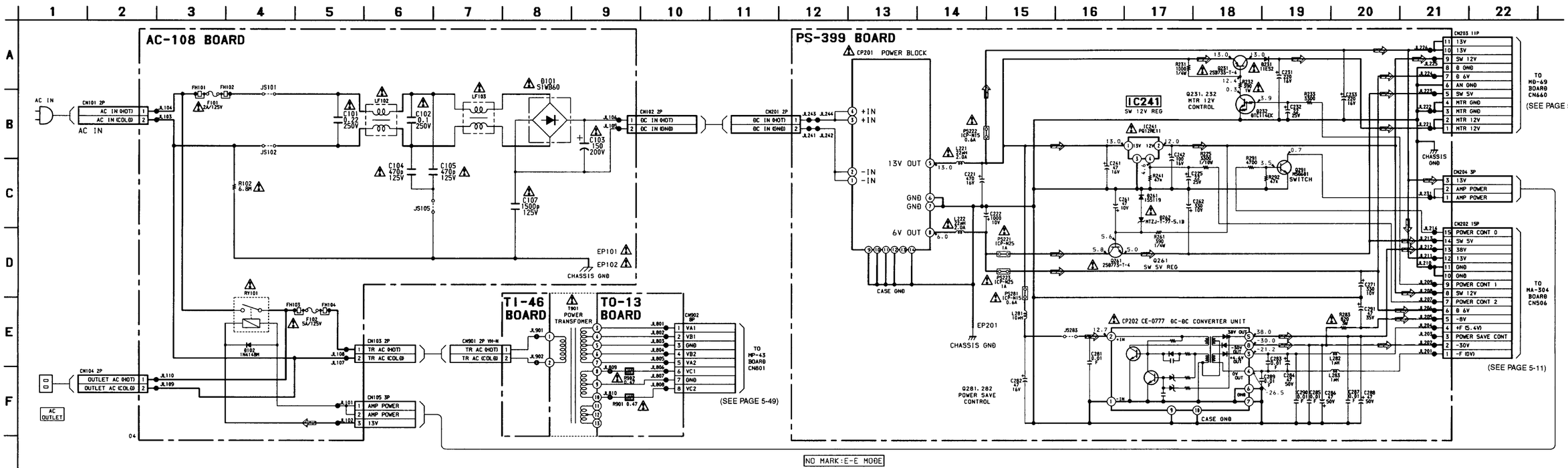
TI-46 BOARD





AC-108 (RECTIFICATION) PS-399 (REGULATOR) TI-46 (POWER TRANSFORMER PRIMARY) TO-13 (POWER TRANSFORMER SECONDARY) SCHEMATIC DIAGRAMS

– Ref. No. AC-108 BOARD, PS-399 BOARD, TI-46 BOARD, TO-13 BOARD : 8,000 series –



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
REPAIR PARTS LIST

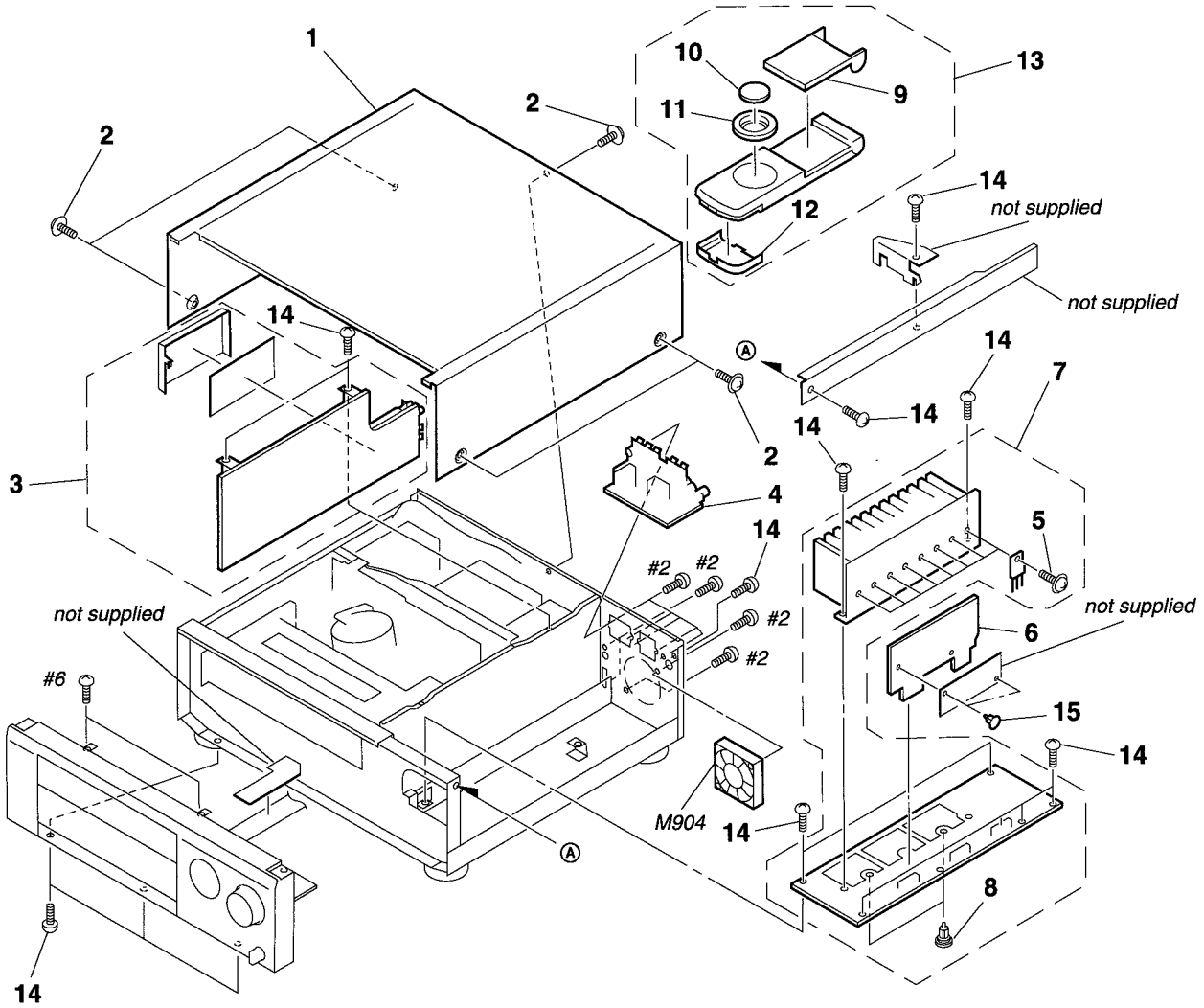
6-1. EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  U : SLV-AV100U
  C : SLV-AV100C

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

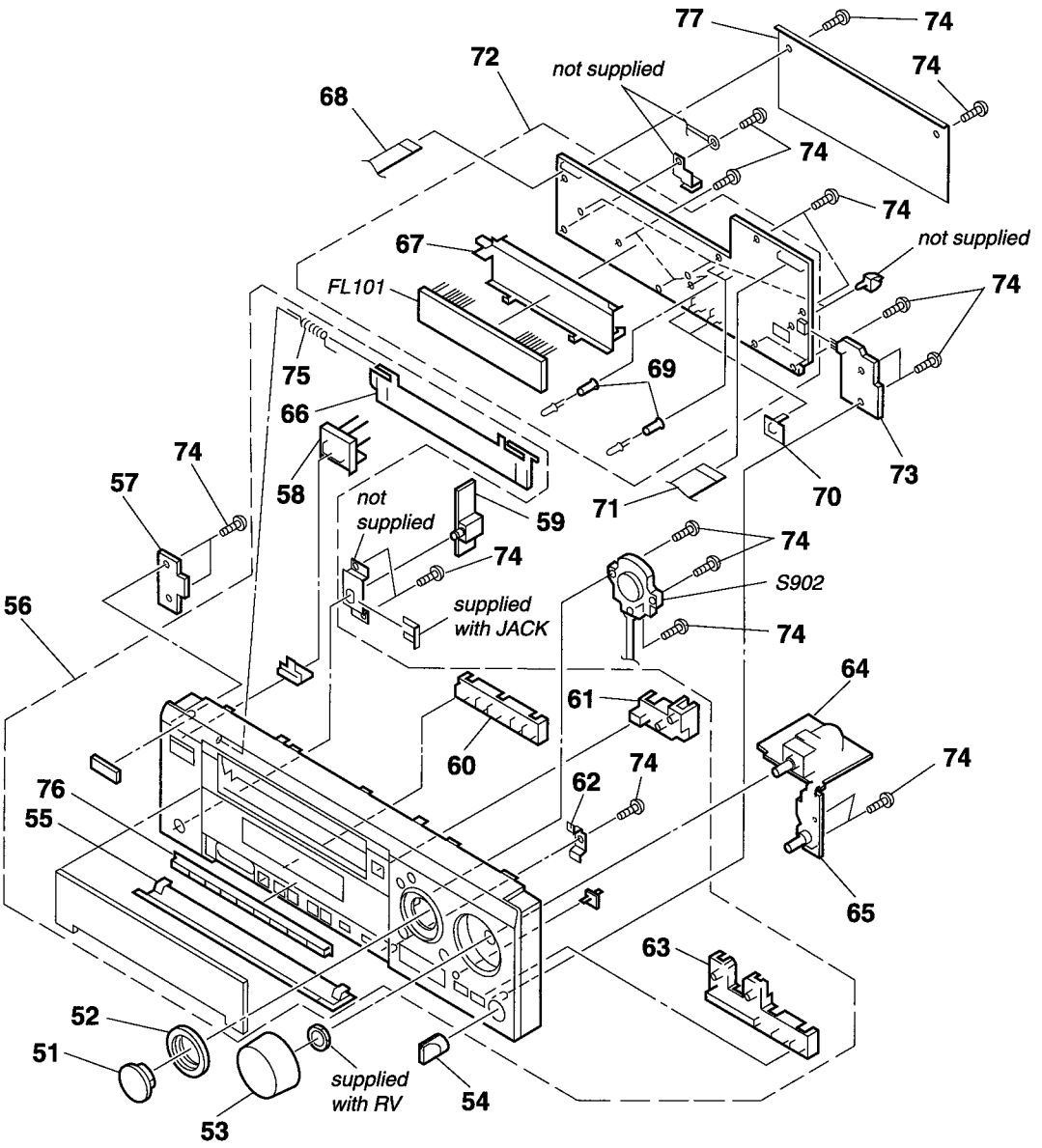
Les composants identifiés par une marque ⚠ sont critiques pour la sécurite.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. CASE ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 1	3-973-343-11	CASE, UPPER	
2	3-710-901-11	SCREW, TAPPING	
* 3	A-6796-574-A	SR-24 BOARD, COMPLETE	
* 4	A-6794-370-A	SP-38 BOARD, COMPLETE	
5	3-905-609-01	SCREW (TRANSISTOR)	
* 6	A-6794-368-A	MP-46 BOARD, COMPLETE	(U)
* 6	A-6794-378-A	MP-46 BOARD, COMPLETE	(C)
* 7	A-6796-576-A	MP-43 BOARD, COMPLETE	(U)
* 7	A-6796-579-A	MP-43 BOARD, COMPLETE	(C)
8	4-812-134-00	RIVET (DIA. 3.5), NYLON	
9	3-709-142-01	COVER (V209), REMOTE CONTROL	
10	3-972-850-01	BUTTON, FUNCTION	
11	3-973-077-31	RING, CHANGE SPEED	
12	3-709-044-01	COVER, BATTERY	
13	1-475-119-11	COMMANDER, STANDARD (RMT-V209)	
14	3-970-608-11	SUMITITE (B3), +BV	
15	4-812-134-11	RIVET (DIA. 3.5), NYLON	
M904	1-698-380-11	MOTOR, FAN (DC)	

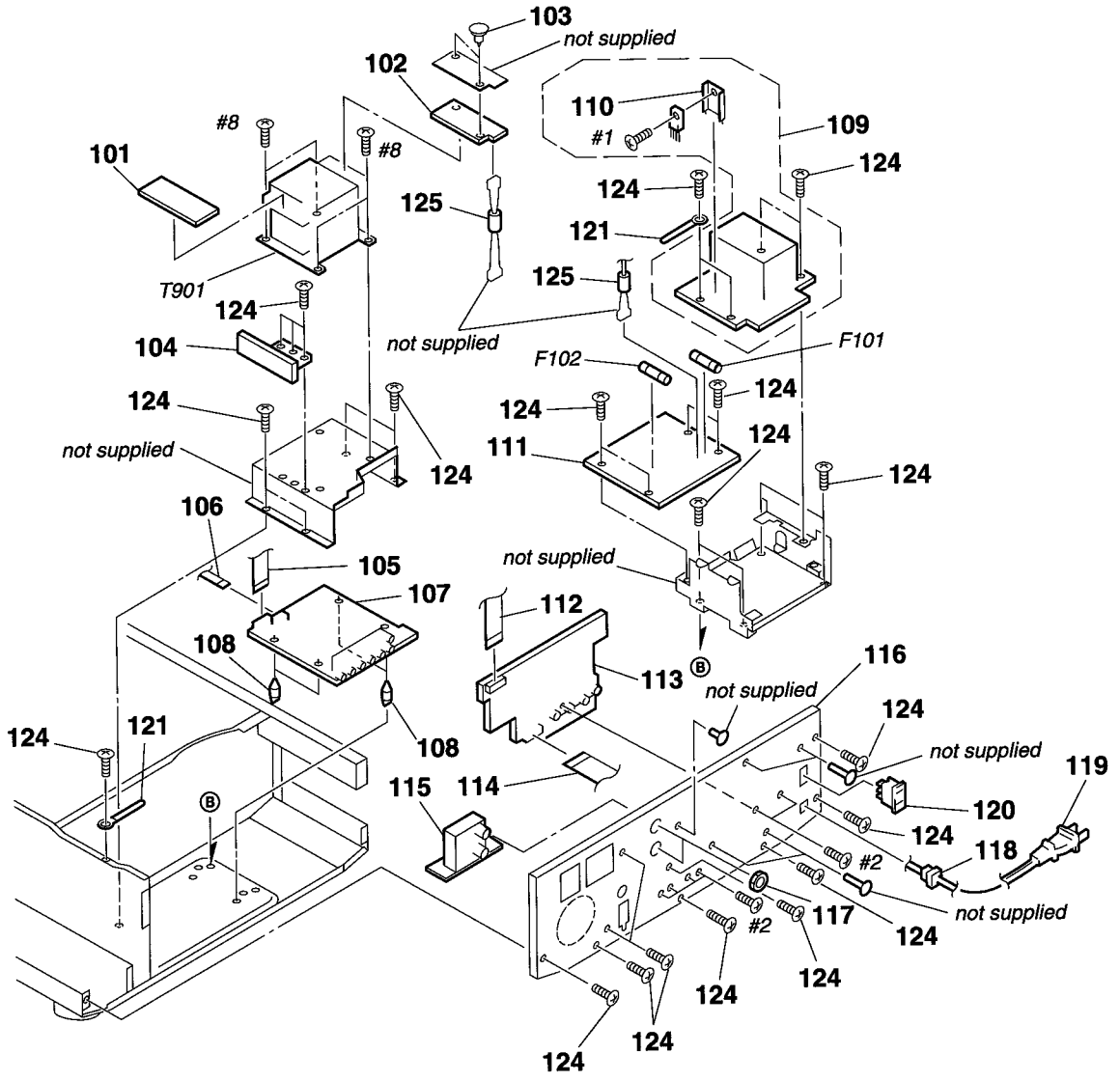
6-1-2. FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	3-972-782-11	BUTTON, CENTER	
52	3-973-077-11	RING, CHANGE SPEED	
53	X-4947-074-1	KNOB (R48) ASSY	
54	4-957-383-01	KNOB (F14)	
55	3-973-359-21	DOOR, JACK	
56	X-3947-093-1	PANEL ASSY, FRONT	
* 57	1-663-355-11	FL-78 BOARD	
58	3-966-213-01	BUTTON, POWER	
* 59	1-663-354-11	HP-94 BOARD	
60	3-973-357-01	BUTTON (SUB)	
61	3-973-355-01	BUTTON (EJ)	
* 62	3-960-556-01	SPRING, DOOR LOCK	
63	3-973-358-01	BUTTON (FUN)	
* 64	A-6796-577-A	VR-64 BOARD, COMPLETE	
* 65	1-665-417-11	AB-24 BOARD	

Ref. No.	Part No.	Description	Remark
66	3-973-354-11	DOOR, CASSETTE	
* 67	3-973-350-01	HOLDER (FL)	
68	1-777-620-11	CABLE, FLAT (FUF-16) 19P	
* 69	3-697-607-01	HOLDER, LED	
70	3-954-403-11	KNOB (LARGE), SLIDE	
71	1-777-619-11	CABLE, FLAT (FSF-11) 23P	
* 72	A-6794-361-A	FM-27 BOARD, COMPLETE	
* 73	1-663-356-11	FR-112 BOARD	
74	4-951-620-01	SCREW (2.6X8), +BVTP	
75	3-953-432-01	SPRING (GE), FL	
76	3-973-356-11	BUTTON (9)	
77	3-974-081-01	COVER, P.C.B	
FL101	1-517-568-21	TUBE, FLUORESCENT INDICATOR	
S902	1-762-844-11	SWITCH, ROTARY	

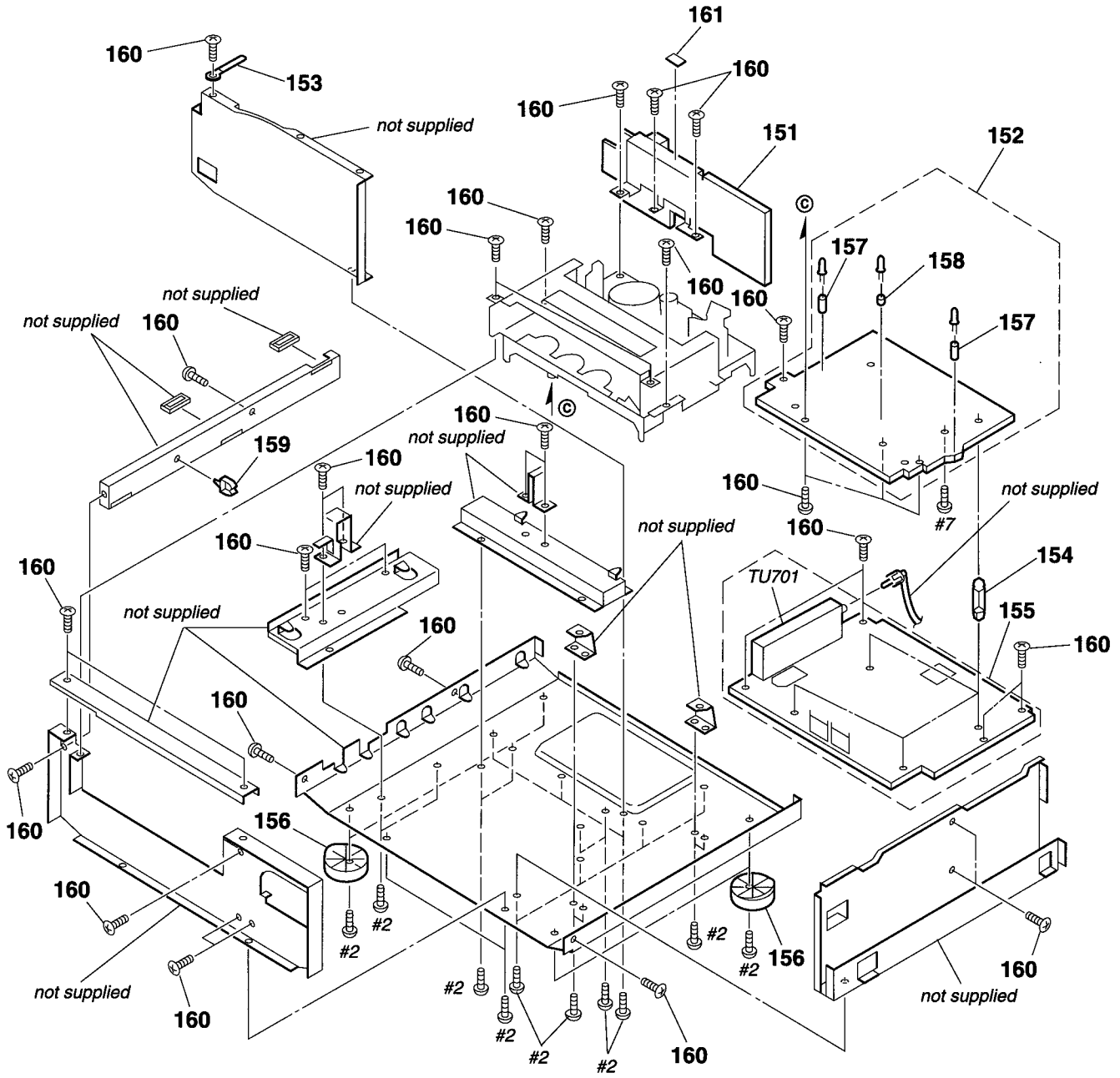
6-1-3. BACK PANEL ASSEMBLY



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurite. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 101	A-6794-372-A	TO-13 BOARD, COMPLETE	
* 102	A-6794-371-A	T1-46 BOARD, COMPLETE	
103	4-812-134-11	RIVET (DIA. 3.5), NYLON	
* 104	A-6794-369-A	RG-42 BOARD, COMPLETE	
105	1-782-224-11	CABLE, FLAT (FSI-2) 15P	
106	1-777-616-11	CABLE, FLAT (FRI-3) 5P	
* 107	A-6794-381-A	IO-61 BOARD, COMPLETE	
* 108	4-884-834-00	SUPPORT, PC	
* 109	A-6794-362-A	PS-399 BOARD, COMPLETE	
* 110	3-951-893-01	HEAT SINK	
* 111	A-6794-382-A	AC-108 BOARD, COMPLETE	
112	1-782-223-11	CABLE, FLAT (FRI-4) 9P	
* 113	A-6794-380-A	IO-60 BOARD, COMPLETE	
114	1-782-225-11	CABLE, FLAT (FII-2) 17P	
* 115	A-6794-360-A	RF-44 BOARD, COMPLETE	
* 116	3-973-328-41	PANEL, BACK	(U)
* 116	3-973-328-51	PANEL, BACK	(C)
117	3-682-691-00	NUT, WASHER HEXAGON	
* 118	3-703-244-00	BUSHING (2104), CORD	
⚠119	1-769-743-11	CORD, POWER	
⚠120	1-526-882-00	OUTLET, AC	
121	3-703-397-01	STOPPER, WIRING	
124	3-970-608-11	SUMITITE (B3), +BV	
125	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
⚠F101	1-532-743-11	FUSE, GLASS CYLINDRICAL (DIA. 5)	
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5)	
⚠T901	1-429-522-21	TRANSFORMER, POWER	(C)
⚠T901	1-429-699-21	TRANSFORMER, POWER	(U)

6-1-4. CHASSIS ASSEMBLY

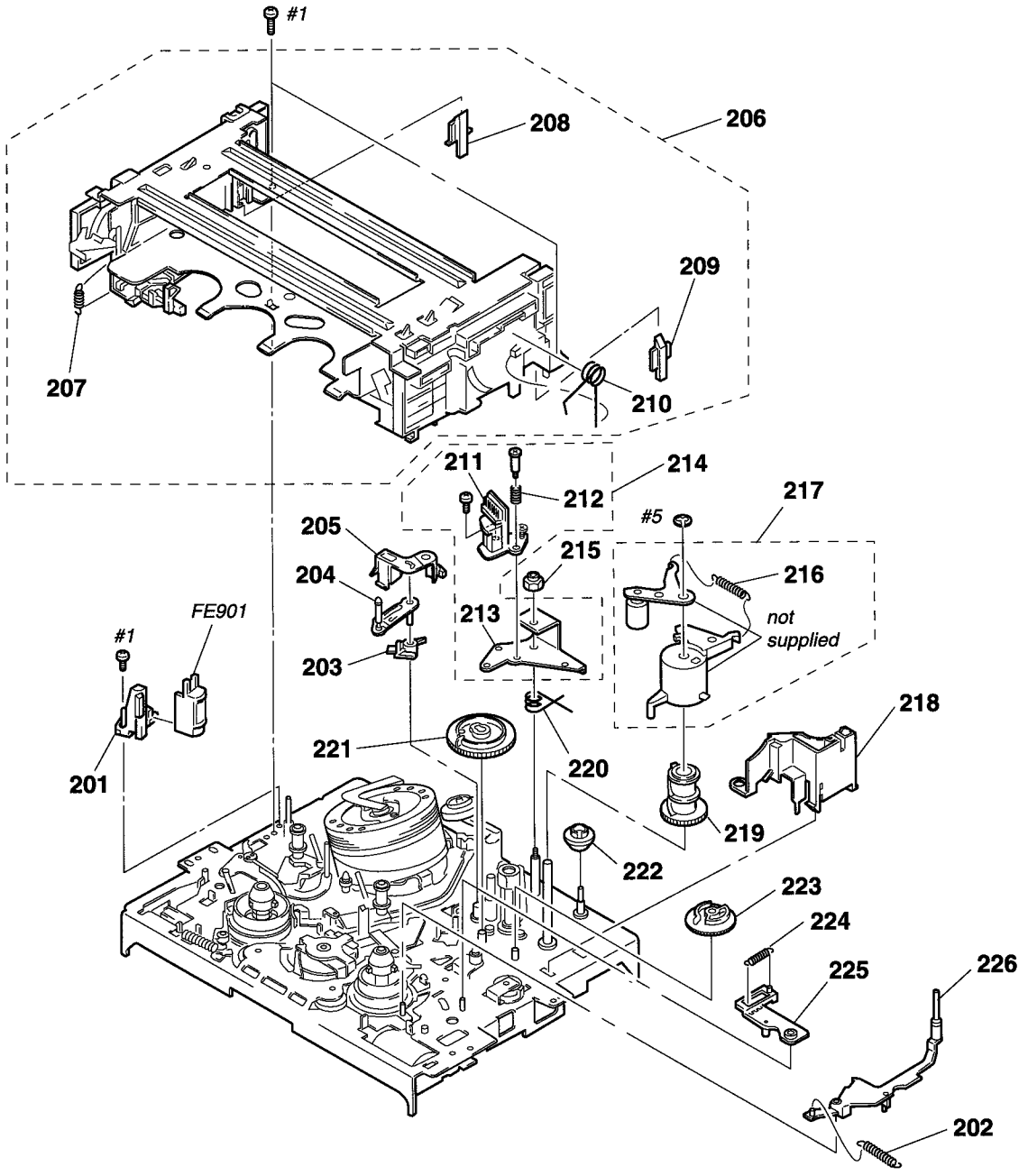


The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurite. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 151	A-6796-575-A	RP-226 BOARD, COMPLETE	
* 152	A-6794-266-A	MD-69 BOARD, COMPLETE	
153	3-703-397-01	STOPPER, WIRING	
* 154	3-682-419-21	HOLDER, P.C.B	
* 155	A-6796-578-A	MA-304 BOARD, COMPLETE	
156	X-4947-025-1	FOOT ASSY	

Ref. No.	Part No.	Description	Remark
* 157	3-960-273-01	SPACER, TOP END	
* 158	3-960-274-01	SPACER, LED	
159	4-962-113-01	CLAMP	
160	3-970-608-11	SUMITITE (B3), +BV	
161	4-860-518-00	CUSHION	
⚠TU701	8-598-342-00	TUNER BTF-WA406	

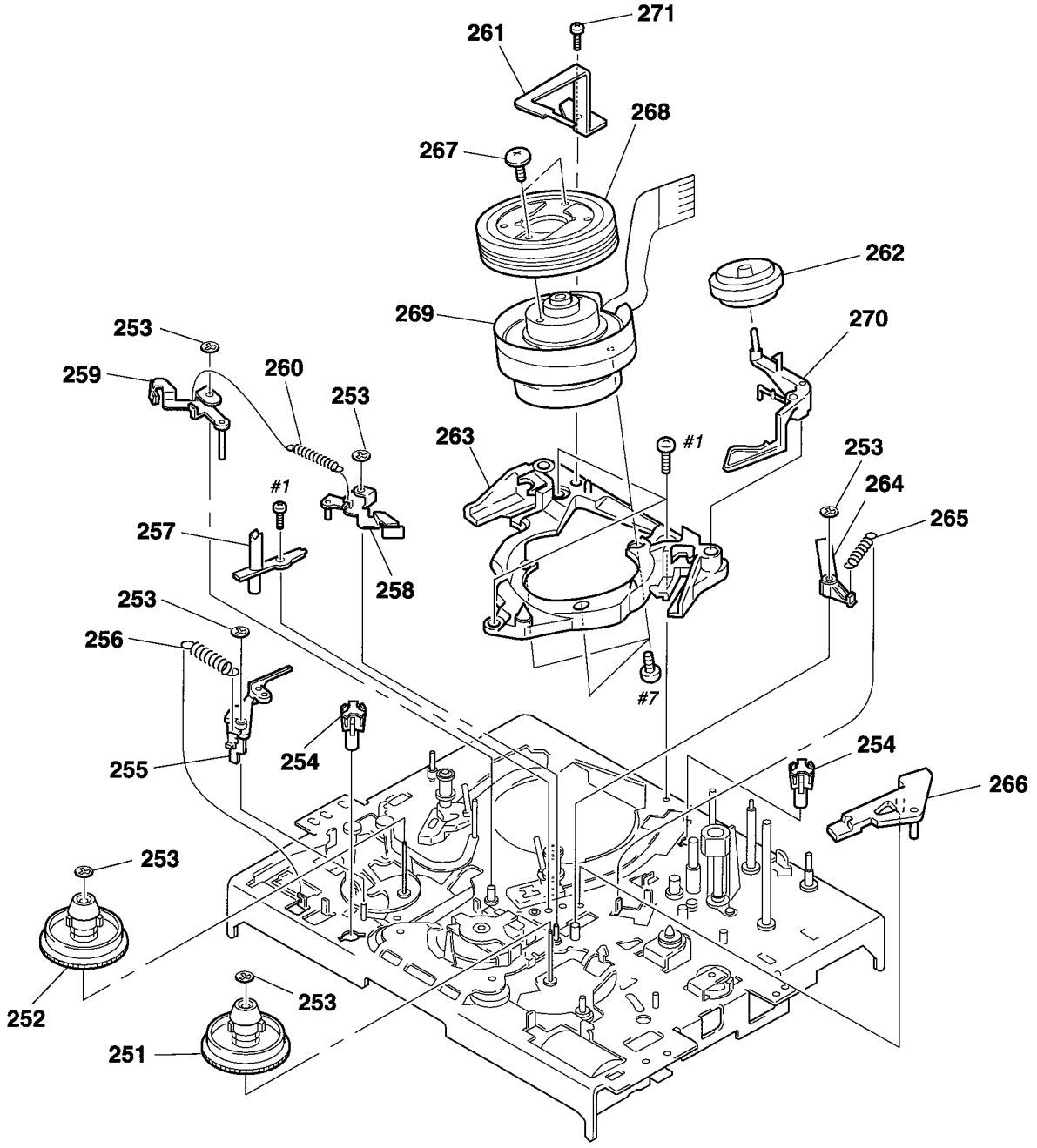
6-1-5. MECHANICAL DECK ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
201	X-3945-348-2	FEH ASSY	
202	3-958-505-01	SPRING (SOFT BRAKE T), TENSION	
203	3-958-421-01	HOLDER, TG8	
204	X-3944-797-1	TG8 ASSY	
205	3-962-298-01	BRACKET, TG7 TAPE	
206	A-6759-603-A	FL BLOCK ASSY	
207	3-958-467-01	SPRING, TENSION COIL	
208	3-960-215-01	PLATE, END SENSOR LIGHT GUIDE	
209	3-970-473-01	PLATE, TOP SENSOR LIGHT GUIDE	
210	3-970-471-01	SPRING (DECK OPEN), TORSION	
211	1-506-485-11	PIN, CONNECTOR 6P	
212	3-960-439-02	SPRING (ACE), COMPRESSION	
213	3-958-491-01	BASE, ACE	
214	A-6736-103-A	ACE BLOCK ASSY	

Ref. No.	Part No.	Description	Remark
215	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
216	3-958-455-01	SPRING (PINCH), TENSION	
217	A-6746-072-A	PRESS BLOCK ASSY, PINCH	
218	3-958-454-01	OPNER, LID	
219	3-958-151-01	GEAR, ELEVATOR	
220	3-958-487-01	SPRING, (ACE) TORSION COIL	
221	3-958-152-01	GEAR, TG8	
222	3-958-501-01	SCREW, ACE ADJUSTMENT	
223	3-958-153-01	GEAR, PRESS	
224	3-958-462-01	SPRING (RVS BRAKE), TENSION	
225	X-3943-885-1	ARM ASSY, RVS BRAKE	
226	X-3943-882-1	BRAKE (T) ASSY, SOFT	
FE901	1-500-144-11	HEAD, FE	

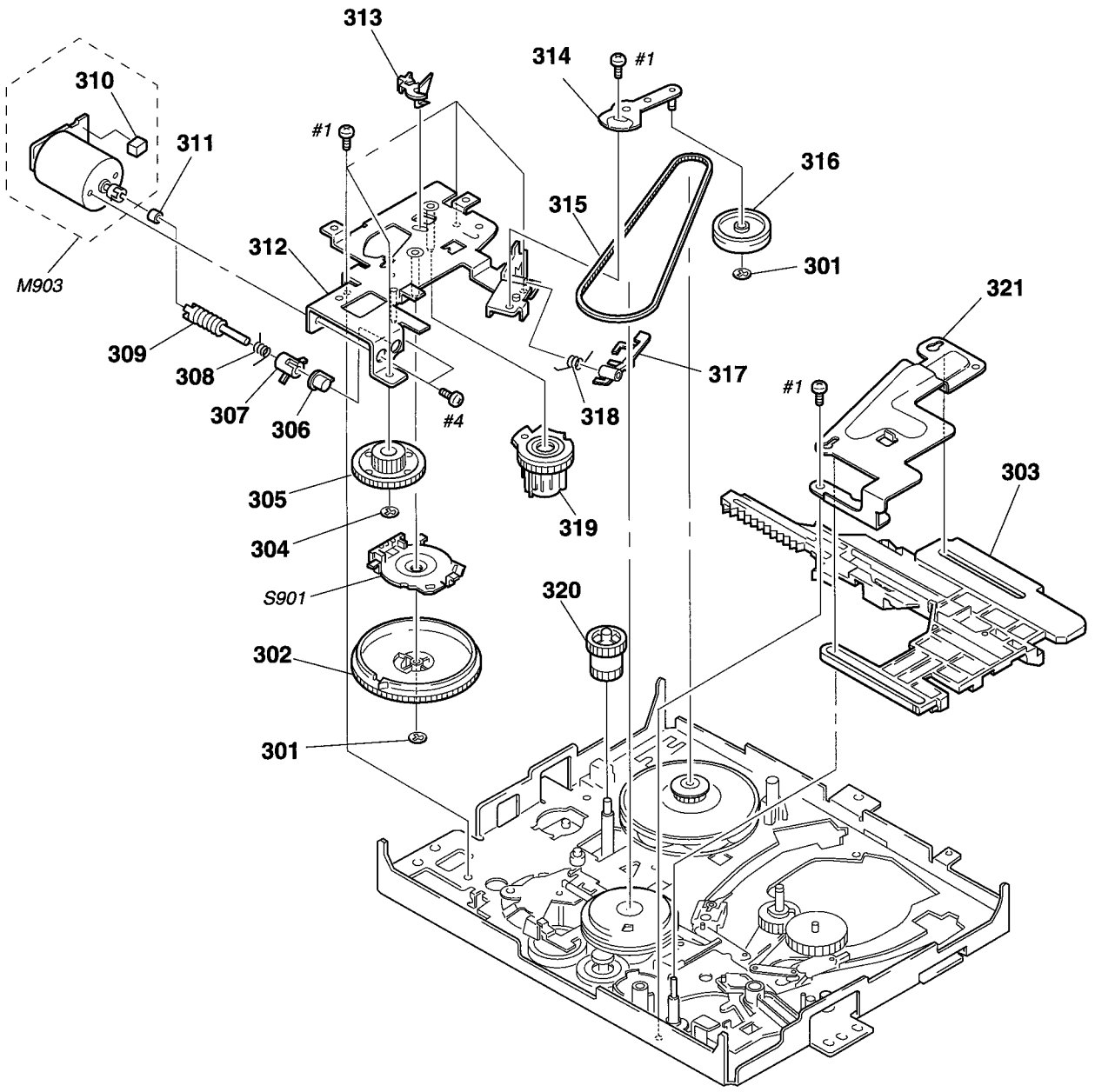
6-1-6. MECHANICAL DECK ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark
251	X-3943-903-1	TABLE, REEL (T) ASSY	
252	X-3943-902-1	TABLE, REEL (S) ASSY	
253	3-669-595-00	WASHER (2), STOPPER	
254	3-958-390-01	SHAFT, PC BOARD	
255	3-958-450-01	BRAKE (S), SOFT	
256	3-958-443-01	SPRING, STRETCH COIL SPRING	
257	3-958-391-01	PLATE, LIGHT GUIDE, LED	
258	X-3945-444-1	BRAKE (T) ASSY, MAIN	
259	X-3945-443-1	BRAKE (S) ASSY, MAIN	
260	3-958-517-01	SPRING, TENSIONCOIL	
261	X-3943-899-8	GROUND ASSY, SHAFT	

Ref. No.	Part No.	Description	Remark
262	X-3947-255-1	ROLLER ASSY, HC	
263	3-969-629-01	BASE, DRUM	
264	3-960-139-01	ARM, NEUTRALITY	
265	3-958-535-01	SPRING, TENSION	
266	3-960-138-01	ARM, PENDULUM COMPULSION	
267	2-643-205-01	SCREW, +PW3X8	
268	8-848-576-02	DRUM ASSY, UPPER (DZR-45-R)	
269	8-848-666-11	DRUM ASSY, LOWER (DZL-51B/J-RP)	
270	3-975-724-01	ARM, HC	
271	3-970-608-11	SUMITITE (B3), +BV	

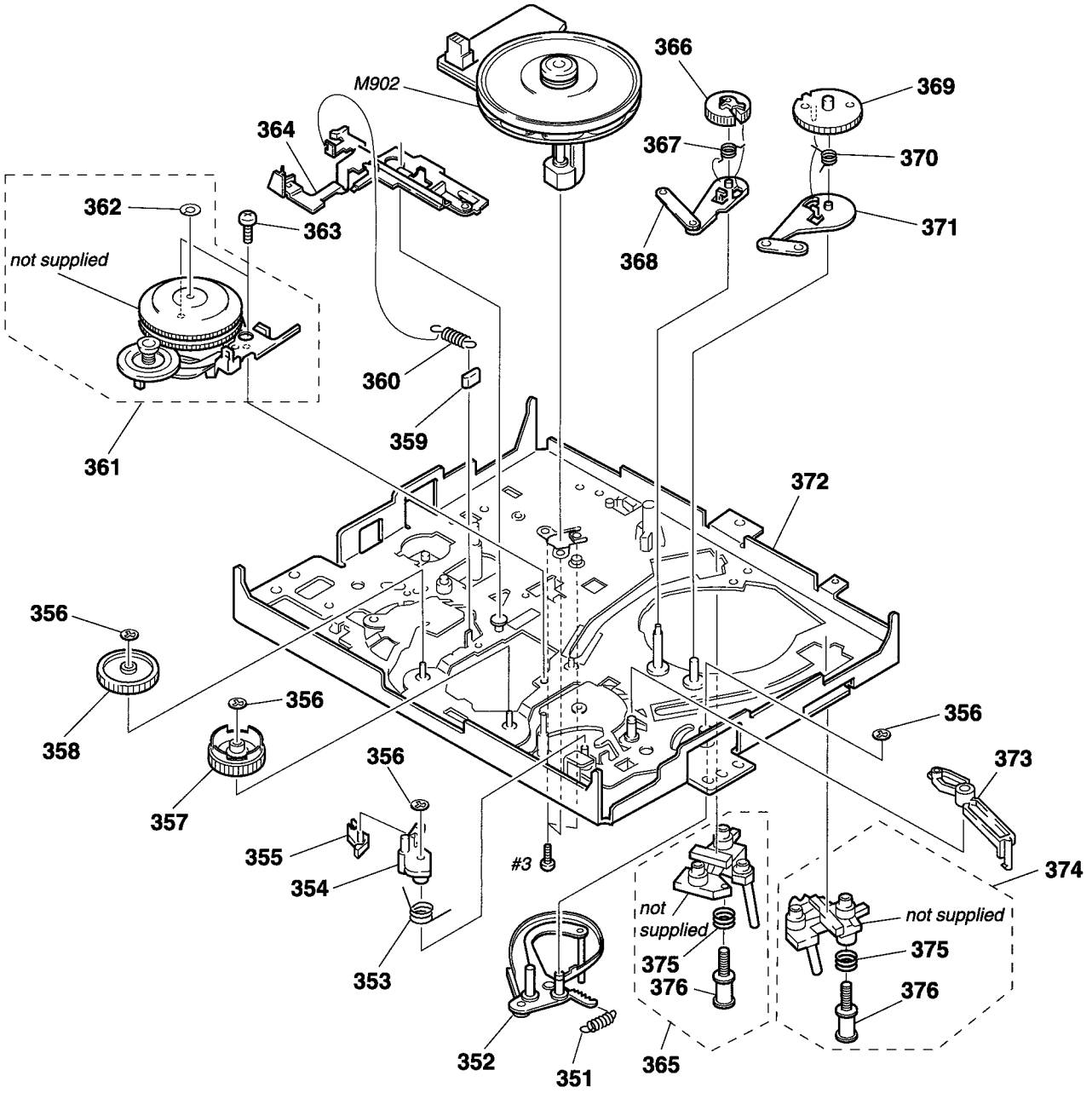
6-1-7. MECHANICAL DECK ASSEMBLY (3)



Ref. No.	Part No.	Description	Remark
301	3-669-595-00	WASHER (2), STOPPER	
302	3-958-161-07	GEAR, CAM	
303	3-958-163-04	SLIDER, MAIN	
304	3-966-092-01	RING, RETAINING, SLIT WASHER	
305	3-958-157-02	WHEEL, WORM	
306	3-958-155-01	BEARING, CAM MOTOR	
307	3-958-160-01	PROPELLOR	
308	3-958-460-01	SPRING, ONE-WAY	
309	3-958-159-01	WORM	
310	1-766-723-11	CONNECTOR, BOARD TO BOARD 3P	
311	3-959-840-11	RUBBER, JOINT	
* 312	X-3943-884-1	CHASSIS ASSY, CAM MOTOR	

Ref. No.	Part No.	Description	Remark
313	3-965-977-03	RETAINER, CAM GEAR	
314	X-3943-889-1	ARM ASSY, TENSION VEHICLE	
315	3-958-361-01	BELT, TIMING	
316	3-958-448-01	WHEEL, TENSION	
317	X-3943-888-1	BRAKE ASSY, CAP	
318	3-958-445-01	SPRING,TORSIONCOIL(CAP BRAKE)	
319	3-958-156-03	GEAR, FL DRIVING	
320	3-958-162-02	GEAR,UPPER/LOWER COMMUNICATION	
* 321	3-959-763-01	RETAINER	
M903	X-3943-883-1	MOTOR ASSY, CAM	
S901	1-762-076-11	SWITCH, ROTARY (ENCODER)	

6-1-8. MECHANICAL DECK ASSEMBLY (4)



Ref. No.	Part No.	Description	Remark
351	3-958-492-01	SPRING (TG1), TENSION COIL	
352	X-3943-886-1	TG1 ASSY	
353	3-958-534-01	SPRING, TORSION	
354	3-958-532-01	ARM, S WINDING	
355	3-958-533-01	CLAW, S WINDING	
356	3-669-595-00	WASHER (2), STOPPER	
357	3-962-959-01	GEAR (S-K), IDLER	
358	3-962-960-01	GEAR (T-K), IDLER	
359	3-959-840-11	RUBBER, JOINT	
360	3-958-529-01	SPRING (MOMENT), TENSION	
361	A-6739-102-A	RKB BLOCK ASSY	
362	3-966-092-01	RING, RETAINING, SLIT WASHER	
363	3-961-441-01	SCREW (3X8)	
364	X-3943-897-1	LEVER ASSY, TRIGGER	

Ref. No.	Part No.	Description	Remark
365	A-6750-325-A	SHUTTLE (T) BLOCK ASSY	
366	3-958-485-02	GEAR (T), LOADING	
367	3-960-449-01	SPRING (T), TORSION COIL	
368	X-3943-891-3	LEVER (T) ASSY, LOADING	
369	3-958-476-01	GEAR (S), LOADING	
370	3-960-448-01	SPRING (S), TORSION COIL	
371	X-3943-890-2	LEVER (S) ASSY, LOADING	
372	X-3945-485-4	CHASSIS ASSY, MECHANICAL	
373	3-958-504-01	ARM, FIXED RELEASE	
374	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
375	3-965-178-01	SPRING	
376	X-3944-378-1	ROLLER ASSY, GUIDE	
M902	1-698-409-14	MOTOR, DC (CAPSTAN)	

6-2. ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA.. : μA.. uPA.. : μPA..
  uPB.. : μPB.. uPC.. : μPC.. uPD.. : μPD..
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviation
  U : SLV-AV100U
  C : SLV-AV100C

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurite.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-665-417-11	AB-24 BOARD			
		**********			
		(Ref.No.5,000 series)			
		< VARIABLE RESISTOR >			
RV501	1-223-961-12	RES, VAR, CARBON 100K/100K (BALANCE)			
*	A-6794-382-A	AC-108 BOARD, COMPLETE			
		**********			
		(Ref.No.8,000 series)			
		< CAPACITOR >			
⚠C101	1-104-706-11	FILM	0.22uF	20%	250V
⚠C102	1-104-705-11	FILM	0.1uF	20%	250V
⚠C103	1-107-401-11	ELECT	150uF	20%	200V
⚠C104	1-113-900-11	CERAMIC	470PF	10%	125V
⚠C105	1-113-900-11	CERAMIC	470PF	10%	125V
⚠C107	1-113-919-11	CERAMIC	0.0015uF	20%	125V
		< CONNECTOR >			
CN101	1-564-321-00	PIN, CONNECTOR 2P			
* CN102	1-564-321-21	PIN, CONNECTOR 2P			
CN103	1-564-321-00	PIN, CONNECTOR 2P			
* CN104	1-564-321-21	PIN, CONNECTOR 2P (AC OUTLET)			
CN105	1-506-482-11	PIN, CONNECTOR 3P			
		< DIODE >			
⚠D101	8-719-510-06	DIODE S1WB60			
D102	8-719-987-63	DIODE 1N4148M			
		< EARTH TERMINAL >			
⚠EP101	1-537-738-21	TERMINAL, EARTH			
⚠EP102	1-537-738-21	TERMINAL, EARTH			
		< FUSE >			
⚠F101	1-532-743-11	FUSE, GLASS CYLINDRICAL(DIA.5) (2A/125V)			
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL(DIA.5) (5A/125V)			
		< FUSE HOLDER >			
FH101	1-533-223-11	HOLDER, FUSE			
FH102	1-533-223-11	HOLDER, FUSE			
FH103	1-533-223-11	HOLDER, FUSE			
FH104	1-533-223-11	HOLDER, FUSE			

Ref. No.	Part No.	Description			Remark
		< LINE FILTER >			
⚠LF102	1-424-117-11	FILTER, LINE			
⚠LF103	1-424-117-11	FILTER, LINE			
		< RESISTOR >			
⚠R102	1-202-729-00	SOLID	6.8M	20%	1/2W
		< RELAY >			
⚠RY101	1-755-018-11	RELAY			
*	1-663-355-11	FL-78 BOARD			
		**********			
		(Ref.No.3,000 series)			
		< CONNECTOR >			
CN101	1-506-469-11	PIN, CONNECTOR 4P			
		< DIODE >			
D102	8-719-056-07	LED SLR-342MC-A-47 (POWER)			
D103	8-719-056-07	LED SLR-342MC-A-47 (POWER)			
		< TRANSISTOR >			
Q102	8-729-421-19	TRANSISTOR UN2213			
		< RESISTOR >			
R102	1-216-021-00	METAL CHIP	68	5%	1/10W
		< SWITCH >			
S101	1-571-977-11	SWITCH, TACTILE (POWER)			
*	A-6794-361-A	FM-27 BOARD, COMPLETE			
		**********			
		(Ref.No.4,000 series)			
	3-697-607-01	HOLDER, LED			
*	3-973-350-01	HOLDER (FL)			
		< CAPACITOR >			
C101	1-124-584-00	ELECT	100uF	20%	10V
C102	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V

FM-27

Ref. No.	Part No.	Description	Remark
C106	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C121	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C131	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C201	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C301	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
CN101	1-774-485-41	CONNECTOR, FFC/FPC 19P	
CN102	1-774-489-41	CONNECTOR, FFC/FPC 23P	
* CN105	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P	
CN107	1-774-471-41	CONNECTOR, FFC/FPC 5P	
* CN301	1-573-129-11	PIN, CONNECTOR 6P	
		< JACK >	
CNJ301	1-774-509-11	JACK, PIN 3P (VIDEO 2 INPUT)	
		< DIODE >	
D101	8-719-404-49	DIODE MA111	
D102	8-719-404-49	DIODE MA111	
D103	8-719-404-49	DIODE MA111	
D104	8-719-404-49	DIODE MA111	
D105	8-719-404-49	DIODE MA111	
D106	8-719-404-49	DIODE MA111	
D107	8-719-404-49	DIODE MA111	
D108	8-719-404-49	DIODE MA111	
D109	8-719-404-49	DIODE MA111	
D110	8-719-422-86	DIODE MA8082-L-TX	
D130	8-719-404-49	DIODE MA111	
D201	8-719-946-30	LED SLR34DC3 (▮▮)	
D202	8-719-812-32	LED TLY123 (◀◀)	
D203	8-719-812-32	LED TLY123 (▶▶)	
D204	8-719-970-67	LED SLR-34MCA49 (▶)	
D301	8-719-421-59	DIODE MA3075WA-(TX)	
D302	8-719-421-59	DIODE MA3075WA-(TX)	
D303	8-719-421-59	DIODE MA3075WA-(TX)	
D304	8-719-422-62	DIODE MA8062-L-TX	
		< INDICATOR TUBE >	
FL101	1-517-568-21	TUBE, FLUORESCENT INDICATOR	
		< IC >	
IC101	8-752-882-55	IC CXP82940-018Q	
IC102	1-466-833-11	IC GP1U58X	
IC201	8-759-366-45	IC NJU3713G(TE2)	
		< JUMPER RESISTOR >	
JR301	1-216-295-00	CONDUCTOR, CHIP (2012)	
		< JUMPER RESISTOR >	
JS301	1-216-295-00	CONDUCTOR, CHIP (2012)	
JS302	1-216-295-00	CONDUCTOR, CHIP (2012)	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q101	8-729-424-08	TRANSISTOR UN2111	
Q102	8-729-424-08	TRANSISTOR UN2111	
Q103	8-729-424-08	TRANSISTOR UN2111	
		< RESISTOR >	
R101	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R102	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R103	1-216-073-00	METAL CHIP 10K 5%	1/10W
R104	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R105	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R106	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R109	1-216-073-00	METAL CHIP 10K 5%	1/10W
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W
R111	1-216-025-00	METAL GLAZE 100 5%	1/10W
R112	1-216-025-00	METAL GLAZE 100 5%	1/10W
R113	1-216-025-00	METAL GLAZE 100 5%	1/10W
R114	1-216-073-00	METAL CHIP 10K 5%	1/10W
R115	1-216-025-00	METAL GLAZE 100 5%	1/10W
R116	1-216-025-00	METAL GLAZE 100 5%	1/10W
R117	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R118	1-216-049-11	METAL GLAZE 1K 5%	1/10W
R119	1-216-073-00	METAL CHIP 10K 5%	1/10W
R120	1-216-073-00	METAL CHIP 10K 5%	1/10W
R121	1-216-073-00	METAL CHIP 10K 5%	1/10W
R122	1-216-073-00	METAL CHIP 10K 5%	1/10W
R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
R124	1-216-073-00	METAL CHIP 10K 5%	1/10W
R125	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R126	1-216-073-00	METAL CHIP 10K 5%	1/10W
R130	1-216-025-00	METAL GLAZE 100 5%	1/10W
R131	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R132	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R133	1-216-073-00	METAL CHIP 10K 5%	1/10W
R134	1-216-073-00	METAL CHIP 10K 5%	1/10W
R135	1-216-047-11	METAL GLAZE 820 5%	1/10W
R136	1-216-081-00	METAL CHIP 22K 5%	1/10W
R151	1-216-081-00	METAL CHIP 22K 5%	1/10W
R152	1-216-081-00	METAL CHIP 22K 5%	1/10W
R153	1-216-081-00	METAL CHIP 22K 5%	1/10W
R154	1-216-081-00	METAL CHIP 22K 5%	1/10W
R161	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R162	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R163	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R164	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R165	1-216-073-00	METAL CHIP 10K 5%	1/10W
R166	1-216-081-00	METAL CHIP 22K 5%	1/10W
R167	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R168	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R169	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R170	1-216-065-00	METAL CHIP 4.7K 5%	1/10W

Ref. No.	Part No.	Description			Remark
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-081-00	METAL CHIP	22K	5%	1/10W
R204	1-216-031-00	METAL CHIP	180	5%	1/10W
R205	1-216-031-00	METAL CHIP	180	5%	1/10W
R206	1-216-031-00	METAL CHIP	180	5%	1/10W
R207	1-216-031-00	METAL CHIP	180	5%	1/10W
R208	1-216-031-00	METAL CHIP	180	5%	1/10W
R209	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R210	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R211	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R212	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R301	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R302	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R303	1-216-022-00	METAL CHIP	75	5%	1/10W
		< SWITCH >			
S101	1-571-977-11	SWITCH, TACTILE (⏏)			
S102	1-571-977-11	SWITCH, TACTILE (◀◀ REW)			
S103	1-571-977-11	SWITCH, TACTILE (❚❚ PAUSE)			
S104	1-571-977-11	SWITCH, TACTILE (● REC)			
S105	1-571-977-11	SWITCH, TACTILE (TV/VTR)			
S106	1-571-977-11	SWITCH, TACTILE (TAPE SPEED)			
S107	1-571-977-11	SWITCH, TACTILE (CH/PRESET TUNING -)			
S108	1-571-977-11	SWITCH, TACTILE (▶▶ FF)			
S109	1-571-977-11	SWITCH, TACTILE (CH/PRESET TUNING +)			
S110	1-571-977-11	SWITCH, TACTILE (FM/AM)			
S111	1-571-977-11	SWITCH, TACTILE (SHIFT)			
S112	1-571-977-11	SWITCH, TACTILE (TUNING MODE)			
S113	1-571-977-11	SWITCH, TACTILE (FM MODE)			
S114	1-571-977-11	SWITCH, TACTILE (STATUS)			
S115	1-571-977-11	SWITCH, TACTILE (VHS (FUNCTION))			
S116	1-571-977-11	SWITCH, TACTILE (VIDEO (FUNCTION))			
S117	1-571-977-11	SWITCH, TACTILE (AUDIO (FUNCTION))			
S118	1-571-977-11	SWITCH, TACTILE (QUICK TIMER)			
S119	1-571-977-11	SWITCH, TACTILE (TIMER REC (ON/OFF)))			
S120	1-571-977-11	SWITCH, TACTILE (EASY SETUP)			
S121	1-571-977-11	SWITCH, TACTILE (COUNTER RESET)			
S122	1-571-977-11	SWITCH, TACTILE (MEMORY)			
S131	1-572-561-11	SWITCH, SLIDE (COMMAND MODE)			
S132	1-572-559-21	SWITCH, SLIDE (EDIT)			
		< VIBRATOR >			
X101	1-760-995-11	VIBRATOR, CERAMIC (16MHz)			
*	1-663-356-11	FR-112 BOARD			
		**********			
		(Ref.No.3,000 series)			
		< CONNECTOR >			
* CN201	1-565-295-11	PLUG, CONNECTOR 4P			
		< DIODE >			
D201	8-719-056-06	LED SLR-342DCT31 (SURROUND)			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R201	1-216-031-00	METAL CHIP	180	5%	1/10W
		< SWITCH >			
S201	1-571-977-11	SWITCH, TACTILE (MUTING)			
S202	1-571-977-11	SWITCH, TACTILE (SURROUND)			
*	1-663-354-11	HP-94 BOARD			
		**********			
		(Ref.No.5,000 series)			
		< CAPACITOR >			
C405	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN401	1-506-468-11	PIN, CONNECTOR 3P			
CN402	1-506-468-11	PIN, CONNECTOR 3P			
		< JACK >			
CNJ401	1-507-854-00	JACK,PHONE (PHONES)			
		< DIODE >			
D401	8-719-422-62	DIODE MA8062-L-TX			
		< RESISTOR >			
R401	1-216-295-00	METAL CHIP	0	5%	1/10W
R402	1-216-295-00	METAL CHIP	0	5%	1/10W
*	A-6794-380-A	IO-60 BOARD COMPLETE			
		**********			
		(Ref.No.7,000 series)			
		< CAPACITOR >			
C125	1-126-786-11	ELECT	47uF	20%	16V
C126	1-115-872-11	ELECT	2.2uF	20%	50V
C127	1-115-872-11	ELECT	2.2uF	20%	50V
C128	1-115-872-11	ELECT	2.2uF	20%	50V
C135	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C138	1-115-872-11	ELECT	2.2uF	20%	50V
C149	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C153	1-115-871-11	ELECT	1uF	20%	50V
C154	1-115-871-11	ELECT	1uF	20%	50V
C155	1-124-499-11	ELECT,NONPOLAR	1uF	20%	50V
C156	1-124-499-11	ELECT,NONPOLAR	1uF	20%	50V
C159	1-124-584-00	ELECT	100uF	20%	10V
C461	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C462	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C463	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C464	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C470	1-126-786-11	ELECT	47uF	20%	16V

Ref. No.	Part No.	Description			Remark
C631	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C632	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C633	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C634	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C635	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C636	1-126-786-11	ELECT	47uF	20%	16V
C637	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C638	1-126-786-11	ELECT	47uF	20%	16V
C681	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C682	1-126-786-11	ELECT	47uF	20%	16V
C683	1-126-935-11	ELECT	470uF	20%	16V
		< JACK >			
CJ101	1-573-144-11	JACK, PIN 2P (VIDEO(VIDEO 1 IN, LINE IN)			
CJ102	1-573-144-11	JACK, PIN 2P (MONITOR VIDEO OUT, TV IN)			
CJ632	1-507-792-31	JACK (CONTROL S OUT)			
		< CONNECTOR >			
CN101	1-573-733-11	PIN, CONNECTOR 6P			
CN102	1-573-739-11	PIN, CONNECTOR 12P			
CN103	1-573-741-11	PIN, CONNECTOR 14P			
CN104	1-568-852-11	CONNECTOR, FFC/FPC 9P			
CN105	1-506-484-11	PIN, CONNECTOR 5P			
CN106	1-774-483-41	CONNECTOR, FFC/FPC 17P			
		< DIODE >			
D106	8-719-914-42	DIODE DA204K			
D631	8-719-200-82	DIODE 11ES2			
D632	8-719-110-08	DIODE RD8.2ES-B2			
D633	8-719-110-08	DIODE RD8.2ES-B2			
		< IC >			
IC104	8-759-431-32	IC BA7626F-E2			
IC108	8-759-711-10	IC NJU4066BM			
IC461	8-759-295-66	IC BA7653AF-E2			
IC631	8-759-356-27	IC NJM2129M-TE2			
		< COIL >			
L102	1-408-421-00	INDUCTOR 100uH			
L461	1-408-421-00	INDUCTOR 100uH			
L651	1-408-421-00	INDUCTOR 100uH			
		< TRANSISTOR >			
Q108	8-729-421-19	TRANSISTOR UN2213			
Q131	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR			
Q481	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR			
Q681	8-729-010-05	TRANSISTOR MSB709-RT1			
		< RESISTOR >			
R125	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R130	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R131	1-216-022-00	METAL CHIP	75	5%	1/10W
R133	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R134	1-208-783-11	METAL GLAZE	1.1K	0.50%	1/10W
R135	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R136	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R137	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R138	1-216-022-00	METAL CHIP	75	5%	1/10W
R139	1-216-022-00	METAL CHIP	75	5%	1/10W
R140	1-216-192-00	METAL CHIP	560	5%	1/8W
R141	1-216-025-00	METAL GLAZE	100	5%	1/10W
R150	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R154	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R155	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R158	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R159	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R160	1-216-073-00	METAL CHIP	10K	5%	1/10W
R461	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R462	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R481	1-216-025-00	METAL GLAZE	100	5%	1/10W
R482	1-216-192-00	METAL CHIP	560	5%	1/8W
R631	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R681	1-216-025-00	METAL GLAZE	100	5%	1/10W
R683	1-216-178-00	METAL GLAZE	150	5%	1/8W
R684	1-216-180-00	METAL GLAZE	180	5%	1/8W
R685	1-216-021-00	METAL CHIP	68	5%	1/10W

* A-6794-381-A IO-61 BOARD, COMPLETE

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(Ref.No.7,000 series)

< CAPACITOR >

C301	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-126-967-11	ELECT	47uF	20%	16V
C303	1-162-286-31	CERAMIC	220PF	10%	50V
C304	1-162-286-31	CERAMIC	220PF	10%	50V
C305	1-162-306-11	CERAMIC	0.01uF	30%	16V
C306	1-162-291-31	CERAMIC	560PF	10%	50V
C307	1-162-294-31	CERAMIC	0.001uF	10%	50V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-126-967-11	ELECT	47uF	20%	16V
C310	1-126-967-11	ELECT	47uF	20%	16V
C312	1-162-306-11	CERAMIC	0.01uF	30%	16V
C313	1-162-306-11	CERAMIC	0.01uF	30%	16V
C314	1-126-967-11	ELECT	47uF	20%	16V
C320	1-164-159-11	CERAMIC	0.1uF		50V
C321	1-164-159-11	CERAMIC	0.1uF		50V

< JACK >

CJ301	1-774-411-11	JACK, PIN 6P (AUDIO(TV IN, VIDEO 1 IN, LINE IN)
CJ302	1-774-411-11	JACK, PIN 6P (AUDIO(CD IN, TAPE/MD REC OUT, TAPE/MD IN)

< CONNECTOR >

CN301	1-774-483-41	CONNECTOR, FFC/FPC 17P

Ref. No.	Part No.	Description			Remark
CN302	1-770-514-41	CONNECTOR, FFC/FPC 5P			
CN303	1-695-338-11	CONNECTOR, FFC/FPC 15P			
		< IC >			
IC301	8-759-700-65	IC NJM79L05A			
IC302	8-759-145-58	IC uPC4558C			
IC303	8-759-805-14	IC LC7822			
IC304	8-759-208-08	IC TC4052BPHB			
		< RESISTOR >			
R301	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R304	1-249-417-11	CARBON	1K	5%	1/4W
R308	1-249-425-11	CARBON	4.7K	5%	1/4W
R309	1-249-429-11	CARBON	10K	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-249-417-11	CARBON	1K	5%	1/4W
R312	1-249-417-11	CARBON	1K	5%	1/4W
R313	1-249-417-11	CARBON	1K	5%	1/4W
R314	1-249-417-11	CARBON	1K	5%	1/4W
R315	1-249-417-11	CARBON	1K	5%	1/4W
R316	1-249-417-11	CARBON	1K	5%	1/4W
R317	1-249-417-11	CARBON	1K	5%	1/4W
R318	1-249-417-11	CARBON	1K	5%	1/4W
R319	1-249-417-11	CARBON	1K	5%	1/4W
R320	1-249-417-11	CARBON	1K	5%	1/4W
R321	1-249-421-11	CARBON	2.2K	5%	1/4W
R322	1-249-421-11	CARBON	2.2K	5%	1/4W
R325	1-249-441-11	CARBON	100K	5%	1/4W
R326	1-249-441-11	CARBON	100K	5%	1/4W
R327	1-249-441-11	CARBON	100K	5%	1/4W
R328	1-249-441-11	CARBON	100K	5%	1/4W
R329	1-249-441-11	CARBON	100K	5%	1/4W
R330	1-249-441-11	CARBON	100K	5%	1/4W
*	A-6796-578-A	MA-304 BOARD, COMPLETE			
		**********			
		(Ref.No.2,000 series)			
*	3-551-305-21	CUSHION, PANEL			
		< BUZZER >			
BZ151	1-529-104-11	BUZZER, PIEZOELECTRIC			
		< CAPACITOR >			
C101	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C102	1-126-967-11	ELECT	47uF	20%	16V
C103	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C104	1-124-234-00	ELECT	22uF	20%	16V
C105	1-124-584-00	ELECT	100uF	20%	10V
C106	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C107	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V

Ref. No.	Part No.	Description			Remark
C108	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C109	1-124-257-00	ELECT	2.2uF	20%	50V
C111	1-124-257-00	ELECT	2.2uF	20%	50V
C114	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C151	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C152	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C153	1-164-346-11	CERAMIC CHIP	1uF		16V
C154	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C155	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C156	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C157	1-164-346-11	CERAMIC CHIP	1uF		16V
C158	1-128-057-11	ELECT	330uF	20%	6.3V
C159	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C160	1-125-705-11	DOUBLE LAYERS	0.22F		5.5V
C161	1-128-057-11	ELECT	330uF	20%	6.3V
C162	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C163	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C164	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C166	1-126-916-11	ELECT	1000uF	20%	6.3V
C201	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C202	1-164-346-11	CERAMIC CHIP	1uF		16V
C203	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C204	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C205	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V
C207	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C208	1-124-584-00	ELECT	100uF	20%	10V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C301	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C302	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C303	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C304	1-124-589-11	ELECT	47uF	20%	16V
C305	1-124-589-11	ELECT	47uF	20%	16V
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-124-589-11	ELECT	47uF	20%	16V
C310	1-124-257-00	ELECT	2.2uF	20%	50V
C311	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C312	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C313	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C314	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C315	1-124-589-11	ELECT	47uF	20%	16V
C316	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C317	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C318	1-126-160-11	ELECT	1uF	20%	50V
C319	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C320	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C352	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C353	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C354	1-124-589-11	ELECT	47uF	20%	16V
C356	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C357	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C358	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C359	1-163-239-11	CERAMIC CHIP	33PF	5%	50V

MA-304

Ref. No.	Part No.	Description			Remark
C360	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C401	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C406	1-126-176-11	ELECT	220uF	20%	10V
C407	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C408	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C409	1-126-176-11	ELECT	220uF	20%	10V
C410	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C411	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C412	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C413	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C414	1-124-584-00	ELECT	100uF	20%	10V
C416	1-124-257-00	ELECT	2.2uF	20%	50V
C417	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C418	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C419	1-124-589-11	ELECT	47uF	20%	16V
C420	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C421	1-162-306-11	CERAMIC	0.01uF	20%	16V
C422	1-126-160-11	ELECT	1uF	20%	50V
C423	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C424	1-124-589-11	ELECT	47uF	20%	16V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C427	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C428	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C501	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C502	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C503	1-124-589-11	ELECT	47uF	20%	16V
C510	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C520	1-126-162-11	ELECT	3.3uF	20%	50V
C521	1-126-096-11	ELECT	10uF	20%	35V
C522	1-137-372-11	FILM	0.022uF	5%	50V
C523	1-126-163-11	ELECT	4.7uF	20%	50V
C524	1-124-589-11	ELECT	47uF	20%	16V
C525	1-137-370-11	FILM	0.01uF	5%	50V
C530	1-126-162-11	ELECT	3.3uF	20%	50V
C531	1-126-096-11	ELECT	10uF	20%	35V
C532	1-137-372-11	FILM	0.022uF	5%	50V
C533	1-126-963-11	ELECT	4.7uF	20%	50V
C534	1-124-589-11	ELECT	47uF	20%	16V
C535	1-137-370-11	FILM	0.01uF	5%	50V
C541	1-137-372-11	FILM	0.022uF	5%	50V
C542	1-124-584-00	ELECT	100uF	20%	10V
C551	1-124-234-00	ELECT	22uF	20%	16V
C552	1-124-234-00	ELECT	22uF	20%	16V
C561	1-126-160-11	ELECT	1uF	20%	50V
C562	1-137-370-11	FILM	0.01uF	5%	50V
C563	1-126-163-11	ELECT	4.7uF	20%	50V
C565	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C566	1-163-014-00	CERAMIC CHIP	0.0027uF	5%	50V
C571	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C572	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C580	1-124-257-00	ELECT	2.2uF	20%	50V
C591	1-124-584-00	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description			Remark
C592	1-124-584-00	ELECT	100uF	20%	10V
C593	1-124-589-11	ELECT	47uF	20%	16V
C701	1-126-967-11	ELECT	47uF	20%	16V
C702	1-126-964-11	ELECT	10uF	20%	50V
C703	1-126-964-11	ELECT	10uF	20%	50V
C704	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C705	1-126-964-11	ELECT	10uF	20%	50V
C706	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C707	1-126-933-11	ELECT	100uF	20%	16V
C708	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C711	1-124-589-11	ELECT	47uF	20%	16V
C712	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C713	1-126-967-11	ELECT	47uF	20%	16V
C714	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C716	1-126-964-11	ELECT	10uF	20%	50V
C717	1-126-964-11	ELECT	10uF	20%	50V
C718	1-128-551-11	ELECT	22uF	20%	25V
C725	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C881	1-104-696-11	FILM	0.015uF	5%	100V
C882	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C883	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C884	1-126-933-11	ELECT	100uF	20%	16V
C885	1-137-431-11	FILM	560PF	5%	50V

< CONNECTOR >

CN101	1-506-468-11	PIN, CONNECTOR 3P	
CN301	1-766-718-11	CONNECTOR, BOARD TO BOARD 17P	
CN302	1-506-477-11	PIN, CONNECTOR 12P	
* CN501	1-766-600-11	CONNECTOR, BOARD TO BOARD 7P	
CN502	1-573-844-11	CONNECTOR, BOARD TO BOARD 12P	
CN503	1-506-469-11	PIN, CONNECTOR 4P	
CN506	1-506-480-11	PIN, CONNECTOR 15P	
* CN851	1-560-892-00	PIN, CONNECTOR 4P	
* CN881	1-560-891-00	PIN, CONNECTOR 3P	
CN901	1-506-479-11	PIN, CONNECTOR 14P	
CN902	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P	
CN903	1-770-526-41	CONNECTOR, FFC/FPC 19P	
CN904	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P	
* CN907	1-568-942-21	PIN, CONNECTOR 4P	

< DIODE >

D151	8-719-200-82	DIODE 11ES2
D152	8-719-200-82	DIODE 11ES2
D201	8-719-200-82	DIODE 11ES2
D202	8-719-801-48	DIODE 1SS193
D301	8-719-911-19	DIODE 1SS119-25
D402	8-719-801-48	DIODE 1SS193
D591	8-719-404-46	DIODE MA110
⚠ D702	8-719-800-76	DIODE 1SS226
D703	8-719-110-78	DIODE RD33ES-B2
D902	8-719-200-82	DIODE 11ES2

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Ref. No.	Part No.	Description	Remark
		< EARTH TERMINAL >	
* EP101	1-537-738-21	TERMINAL, EARTH	
* EP102	1-537-738-21	TERMINAL, EARTH	
		< IC >	
IC101	8-759-246-14	IC TA8823N	
IC151	8-752-884-65	IC CXP82948-022Q	
IC152	8-759-248-87	IC MM1256XF-BE	
IC153	8-759-278-56	IC AK6440HF-E2	
IC201	8-752-882-54	IC CXP87248A-035Q	
IC302	8-759-164-09	IC LA7218M	
IC303	1-801-097-11	IC YC MODULE 3 (NTSC-YC)	
IC401	8-759-437-21	IC MB90089PF-G-171-BND-ER	
IC402	8-759-164-09	IC LA7218M	
IC501	8-759-365-32	IC XLH7779K-VP	
IC551	8-759-089-84	IC BA7755AF	
IC701	8-759-701-59	IC NJM78M09FA	
		< JUMPER RESISTOR >	
JR001	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR002	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR003	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR004	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR006	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR501	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR502	1-216-295-00	CONDUCTOR, CHIP (2012)	
		< JUMPER RESISTOR >	
JS103	1-216-295-00	CONDUCTOR, CHIP (2012)	
JS404	1-216-295-00	CONDUCTOR, CHIP (2012)	
JS405	1-216-295-00	CONDUCTOR, CHIP (2012)	
JS885	1-216-295-00	CONDUCTOR, CHIP (2012)	
		< COIL >	
L101	1-408-421-00	INDUCTOR 100uH	
L151	1-408-970-21	INDUCTOR 10uH	
L201	1-408-970-21	INDUCTOR 10uH	
L301	1-410-521-11	INDUCTOR 100uH	
L302	1-414-186-31	INDUCTOR 33uH	
L303	1-414-186-31	INDUCTOR 33uH	
L305	1-414-186-31	INDUCTOR 33uH	
L307	1-408-421-00	INDUCTOR 100uH	
L351	1-410-525-11	INDUCTOR 220uH	
L352	1-414-189-31	INDUCTOR 100uH	
L353	1-410-513-11	INDUCTOR 22uH	
L401	1-408-421-00	INDUCTOR 100uH	
L403	1-412-470-21	INDUCTOR 22uH	
L404	1-408-421-00	INDUCTOR 100uH	
L701	1-414-183-41	INDUCTOR 10uH	
L702	1-414-189-31	INDUCTOR 100uH	
L703	1-414-183-41	INDUCTOR 10uH	
L705	1-414-183-41	INDUCTOR 10uH	

Ref. No.	Part No.	Description	Remark
L881	1-410-687-11	INDUCTOR 1.2mH	
L901	1-412-364-11	INDUCTOR 0uH	
		< IC LINK >	
⚠PS885	1-532-727-11	LINK, IC 0.25A (ICP-N5)	
		< THERMISTOR >	
⚠PTH592	1-202-855-00	THERMISTOR, POSITIVE	
		< TRANSISTOR >	
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q202	8-729-901-06	TRANSISTOR DTA144EK	
Q301	8-729-901-01	TRANSISTOR DTC144EK	
Q302	8-729-901-01	TRANSISTOR DTC144EK	
Q323	8-729-901-06	TRANSISTOR DTA144EK	
Q324	8-729-901-06	TRANSISTOR DTA144EK	
Q352	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q353	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q406	8-729-216-22	TRANSISTOR 2SA1162-G	
Q407	8-729-216-22	TRANSISTOR 2SA1162-G	
Q413	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q591	8-729-804-41	TRANSISTOR 2SB1122-S	
Q592	8-729-015-11	TRANSISTOR 2SD1802FAST-TL	
Q593	8-729-901-06	TRANSISTOR DTA144EK	
Q701	8-729-901-01	TRANSISTOR DTC144EK	
⚠Q703	8-729-173-38	TRANSISTOR 2SA733-K	
Q705	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q707	8-729-216-22	TRANSISTOR 2SA1162-G	
Q708	8-729-216-22	TRANSISTOR 2SA1162-G	
Q709	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q715	8-729-901-06	TRANSISTOR DTA144EK	
Q716	8-729-901-06	TRANSISTOR DTA144EK	
Q717	8-729-901-01	TRANSISTOR DTC144EK	
Q881	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
Q882	8-729-900-51	TRANSISTOR DTA114TK	
Q886	8-729-010-29	TRANSISTOR MSD601-RST1	
		< RESISTOR >	
R101	1-216-119-00	METAL CHIP 820K 5% 1/10W	
R102	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R103	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R104	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R105	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R106	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R107	1-216-186-00	METAL GLAZE 330 5% 1/8W	
R108	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R111	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R112	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R113	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R152	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R153	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R154	1-216-049-11	METAL GLAZE 1K 5% 1/10W	

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MA-304

Ref. No.	Part No.	Description			Remark
R157	1-216-113-00	METAL CHIP	470K	5%	1/10W
R158	1-216-095-00	METAL CHIP	82K	5%	1/10W
R159	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R160	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R161	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R162	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R163	1-216-073-00	METAL CHIP	10K	5%	1/10W
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W
R165	1-216-073-00	METAL CHIP	10K	5%	1/10W
R166	1-216-073-00	METAL CHIP	10K	5%	1/10W
R167	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R169	1-216-113-00	METAL CHIP	470K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W
R183	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R186	1-414-235-11	INDUCTOR,	FERRITE	BEAD	
R187	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R188	1-414-235-11	INDUCTOR,	FERRITE	BEAD	
R189	1-414-235-11	INDUCTOR,	FERRITE	BEAD	
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R203	1-216-073-00	METAL CHIP	10K	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R208	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-101-00	METAL CHIP	150K	5%	1/10W
R212	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R213	1-216-077-00	METAL CHIP	15K	5%	1/10W
R214	1-216-085-00	METAL CHIP	33K	5%	1/10W
R215	1-216-095-00	METAL CHIP	82K	5%	1/10W
R218	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R219	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R233	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R234	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R240	1-216-073-00	METAL CHIP	10K	5%	1/10W
R299	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R301	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R302	1-216-052-00	METAL CHIP	1.3K	5%	1/10W
R303	1-216-031-00	METAL CHIP	180	5%	1/10W
R304	1-208-798-11	METAL GLAZE	4.7K	0.50%	1/10W
R305	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R306	1-216-081-00	METAL CHIP	22K	5%	1/10W
R308	1-216-041-00	METAL CHIP	470	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-240-00	METAL GLAZE	56K	5%	1/8W
R315	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R317	1-216-107-00	METAL CHIP	270K	5%	1/10W
R318	1-216-101-00	METAL CHIP	150K	5%	1/10W
R319	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R325	1-216-043-00	METAL GLAZE	560	5%	1/10W
R326	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W
R351	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R352	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R353	1-216-045-00	METAL CHIP	680	5%	1/10W
R354	1-216-083-00	METAL CHIP	27K	5%	1/10W
R355	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R356	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R357	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R358	1-216-035-00	METAL CHIP	270	5%	1/10W
R401	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R408	1-216-101-00	METAL CHIP	150K	5%	1/10W
R409	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R410	1-216-043-00	METAL GLAZE	560	5%	1/10W
R412	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R413	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R414	1-216-081-00	METAL CHIP	22K	5%	1/10W
R415	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R416	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R417	1-216-033-00	METAL CHIP	220	5%	1/10W
R418	1-216-033-00	METAL CHIP	220	5%	1/10W
R421	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R423	1-216-073-00	METAL CHIP	10K	5%	1/10W
R426	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R427	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R428	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R429	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R430	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R501	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R502	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R503	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R504	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R505	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R506	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R507	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R510	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R514	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R515	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R521	1-216-073-00	METAL CHIP	10K	5%	1/10W
R522	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R523	1-216-079-00	METAL CHIP	18K	5%	1/10W
R524	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R525	1-208-809-11	METAL GLAZE	13K	0.50%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R533	1-216-079-00	METAL CHIP	18K	5%	1/10W
R534	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R535	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
R541	1-216-081-00	METAL CHIP	22K	5%	1/10W
R551	1-216-129-00	METAL CHIP	2.2M	5%	1/10W

Ref. No.	Part No.	Description			Remark
R561	1-216-073-00	METAL CHIP	10K	5%	1/10W
R562	1-216-109-00	METAL CHIP	330K	5%	1/10W
R563	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R564	1-216-041-00	METAL CHIP	470	5%	1/10W
R565	1-216-099-00	METAL CHIP	120K	5%	1/10W
R566	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R567	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R571	1-216-073-00	METAL CHIP	10K	5%	1/10W
R572	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R573	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W
R575	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R580	1-216-073-00	METAL CHIP	10K	5%	1/10W
R591	1-249-421-11	CARBON	2.2K	5%	1/4W
R592	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R593	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R701	1-216-041-00	METAL CHIP	470	5%	1/10W
R702	1-216-041-00	METAL CHIP	470	5%	1/10W
R703	1-249-404-00	CARBON	82	5%	1/4W
R704	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R705	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R706	1-216-073-00	METAL CHIP	10K	5%	1/10W
R708	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R713	1-216-041-00	METAL CHIP	470	5%	1/10W
R714	1-216-041-00	METAL CHIP	470	5%	1/10W
R715	1-216-025-00	METAL GLAZE	100	5%	1/10W
R716	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R717	1-216-073-00	METAL CHIP	10K	5%	1/10W
R719	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R720	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R721	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R725	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R726	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R733	1-216-081-00	METAL CHIP	22K	5%	1/10W
R734	1-216-081-00	METAL CHIP	22K	5%	1/10W
R740	1-216-093-00	METAL CHIP	68K	5%	1/10W
R747	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R748	1-216-081-00	METAL CHIP	22K	5%	1/10W
R749	1-249-437-11	CARBON	47K	5%	1/4W
R750	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R751	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R881	1-216-081-00	METAL CHIP	22K	5%	1/10W
⚠R882	1-249-389-11	CARBON	4.7	5%	1/4W F
R885	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R886	1-216-073-00	METAL CHIP	10K	5%	1/10W
R887	1-216-089-00	METAL GLAZE	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV521	1-241-763-11	RES, ADJ, CERMET 4.7K			
RV531	1-241-763-11	RES, ADJ, CERMET 4.7K			
RV541	1-241-764-11	RES, ADJ, CERMET 10K			
		< TRANSFORMER >			
T881	1-423-414-11	TRANSFORMER, BIAS OSCILLATION			

Ref. No.	Part No.	Description			Remark
		< TUNER >			
⚠TU701	8-598-342-00	TUNER BTF-WA406			
		< VIBRATOR >			
X151	1-579-463-11	VIBRATOR, CRYSTAL (32kHz)			
X152	1-760-995-11	VIBRATOR, CERAMIC (16MHz)			
X201	1-760-494-11	VIBRATOR, CRYSTAL (16MHz)			
X301	1-577-165-11	VIBLATOR, CERAMIC (500kHz)			
X401	1-577-381-11	VIBRATOR, CRYSTAL (17MHz)			
X402	1-577-165-11	VIBLATOR, CERAMIC (500kHz)			
*	A-6794-266-A	MD-69 BOARD, COMPLETE			
		********** (Ref.No.2,000 series)			
*	3-960-273-01	SPACER, TOP END			
*	3-960-274-01	SPACER, LED			
		< CAPACITOR >			
C652	1-162-638-11	CERAMIC CHIP	1uF		16V
C653	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C654	1-124-589-11	ELECT	47uF	20%	16V
C655	1-130-489-00	MYLAR	0.033uF	5%	50V
C656	1-137-441-11	FILM	0.027uF	5%	50V
C661	1-126-176-11	ELECT	220uF	20%	10V
C662	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C664	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C666	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C667	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C673	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C675	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C691	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C692	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C694	1-124-455-00	ELECT	100uF	20%	16V
C695	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C696	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C697	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN650	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P			
CN651	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P			
* CN660	1-568-788-21	PIN, CONNECTOR 11P			
* CN671	1-766-538-11	CONNECTOR, BOARD TO BOARD 8P			
CN675	1-506-484-11	PIN, CONNECTOR 5P			
* CN681	1-766-537-11	CONNECTOR (HMD) 5P			
* CN691	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P			
		< DIODE >			
D651	8-719-801-48	DIODE 1SS193			
D661	8-719-048-26	LED GL528V1 (T/S LED)			
D665	8-719-921-54	DIODE MTZJ-6.2B			
D667	8-719-921-54	DIODE MTZJ-6.2B			

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MD-69 **MP-43**

Ref. No.	Part No.	Description			Remark
D671	8-719-200-82	DIODE 11ES2			
D691	8-719-977-24	DIODE DTZ9.1B			
		< IC >			
IC651	8-759-335-76	IC uPC5023GR-089-E2			
IC691	8-759-294-26	IC BA6209-V2			
		< JUMPER RESISTOR >			
JR602	1-216-295-00	CONDUCTOR, CHIP	(2012)		
JR603	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR604	1-216-296-00	CONDUCTOR, CHIP	(3216)		
JR605	1-216-295-00	CONDUCTOR, CHIP	(2012)		
		< JUMPER RESISTOR >			
JS653	1-216-295-00	CONDUCTOR, CHIP	(2012)		
		< PHOTO INTERRUPTER >			
PH661	8-749-010-19	PHOTO INTERRUPTER GP3S113			
PH662	8-749-010-20	PHOTO INTERRUPTER GP3S114			
		< IC LINK >			
⚠PS671	1-532-727-11	LINK, IC 0.25A (ICP-N5)			
		< TRANSISTOR >			
Q661	8-729-025-92	PHOTO TRANSISTOR PT380F			
Q662	8-729-025-92	PHOTO TRANSISTOR PT380F			
Q663	8-729-281-53	TRANSISTOR 2SC1815-GR			
		< RESISTOR >			
R651	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R652	1-216-079-00	METAL CHIP	18K	5%	1/10W
R653	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R654	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R655	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R656	1-216-103-00	METAL CHIP	180K	5%	1/10W
R661	1-249-400-11	CARBON	39	5%	1/4W
R662	1-249-400-11	CARBON	39	5%	1/4W
R663	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R664	1-216-107-00	METAL CHIP	270K	5%	1/10W
R665	1-216-107-00	METAL CHIP	270K	5%	1/10W
R666	1-249-413-11	CARBON	470	5%	1/4W
R667	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R668	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R671	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R674	1-216-083-00	METAL CHIP	27K	5%	1/10W
R675	1-216-093-00	METAL CHIP	68K	5%	1/10W
R676	1-216-056-00	METAL GLAZE	2K	5%	1/10W
R677	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R678	1-216-075-00	METAL CHIP	12K	5%	1/10W
R681	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R682	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R683	1-216-238-00	METAL GLAZE	47K	5%	1/8W

Ref. No.	Part No.	Description			Remark
R684	1-216-283-11	METAL GLAZE	3.6M	5%	1/8W
R693	1-216-295-00	CONDUCTOR, CHIP	(2012)		
		< SWITCH >			
S651	1-570-953-11	SWITCH, PUSH (1 KEY) (REC PROOF)			
*	A-6796-576-A	MP-43 BOARD, COMPLETE			(U)
*	A-6796-579-A	MP-43 BOARD, COMPLETE			(C)
		********** (Ref.No.6,000 series)			
	3-905-609-01	SCREW (TRANSISTOR)			
	4-812-134-00	RIVET (DIA. 3.5), NYLON			
		< CAPACITOR >			
C610	1-126-967-11	ELECT	47uF	20%	16V
C612	1-107-597-11	CERAMIC	22PF	10%	500V
C613	1-107-597-11	CERAMIC	22PF	10%	500V
C620	1-162-286-31	CERAMIC	220PF	10%	50V
C660	1-126-967-11	ELECT	47uF	20%	16V
C662	1-107-597-11	CERAMIC	22PF	10%	500V
C663	1-107-597-11	CERAMIC	22PF	10%	500V
C670	1-162-286-31	CERAMIC	220PF	10%	50V
C710	1-126-967-11	ELECT	47uF	20%	16V
C712	1-107-597-11	CERAMIC	22PF	10%	500V
C713	1-107-597-11	CERAMIC	22PF	10%	500V
C720	1-162-286-31	CERAMIC	220PF	10%	50V
C721	1-126-923-11	ELECT	220uF	20%	10V
C722	1-126-965-11	ELECT	22uF	20%	50V
C760	1-126-967-11	ELECT	47uF	20%	16V
C762	1-107-597-11	CERAMIC	22PF	10%	500V
C763	1-107-597-11	CERAMIC	22PF	10%	500V
C770	1-162-286-31	CERAMIC	220PF	10%	50V
C803	1-128-591-11	ELECT	6800uF	20%	56V(C)
C803	1-107-766-11	ELECT	8200uF	20%	71V(U)
C804	1-128-591-11	ELECT	6800uF	20%	56V(C)
C804	1-107-766-11	ELECT	8200uF	20%	71V(U)
⚠C805	1-137-420-11	FILM	0.047uF	10%	100V
⚠C806	1-137-420-11	FILM	0.047uF	10%	100V
C811	1-126-943-11	ELECT	2200uF	20%	25V
C812	1-126-942-61	ELECT	1000uF	20%	25V
⚠C813	1-102-074-00	CERAMIC	0.001uF	10%	50V
⚠C814	1-102-074-00	CERAMIC	0.001uF	10%	50V
C815	1-126-967-11	ELECT	47uF	20%	50V
C816	1-126-967-11	ELECT	47uF	20%	50V
		< CONNECTOR >			
CN602	1-764-817-11	CONNECTOR, BOARD TO BOARD 8P			
CN702	1-764-817-11	CONNECTOR, BOARD TO BOARD 8P			
CN703	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P			
CN704	1-506-468-11	PIN, CONNECTOR 3P			
CN705	1-506-482-11	PIN, CONNECTOR 3P			
CN801	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P			

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Ref. No.	Part No.	Description			Remark
CN802	1-506-475-11	PIN, CONNECTOR 10P			
		< DIODE >			
D711	8-719-987-63	DIODE 1N4148M			
D721	8-719-815-85	DIODE 1S1585			
D722	8-719-815-85	DIODE 1S1585			
D723	8-719-987-63	DIODE 1N4148M			
D724	8-719-987-63	DIODE 1N4148M			
D725	8-719-987-63	DIODE 1N4148M			
D726	8-719-987-63	DIODE 1N4148M			
⚠D802	8-719-302-38	DIODE RBV-602-01			
⚠D805	8-719-002-33	DIODE UZL-24L			
D818	8-719-987-63	DIODE 1N4148M			
⚠D820	8-719-510-53	DIODE D4SB60L			
		< EARTH TERMINAL >			
* EP801	1-537-738-21	TERMINAL, EARTH			
		< TRANSISTOR >			
Q601	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q602	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q603	8-729-020-52	TRANSISTOR 2SD2439-OPY			
Q604	8-729-020-48	TRANSISTOR 2SB1588-OPY			
Q610	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q620	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
Q651	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q652	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q653	8-729-020-52	TRANSISTOR 2SD2439-OPY			
Q654	8-729-020-48	TRANSISTOR 2SB1588-OPY			
Q670	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q702	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q703	8-729-020-52	TRANSISTOR 2SD2439-OPY			
Q704	8-729-020-48	TRANSISTOR 2SB1588-OPY			
Q710	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q711	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q720	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
Q721	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
Q722	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q723	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q751	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q752	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q753	8-729-020-52	TRANSISTOR 2SD2439-OPY			
Q754	8-729-020-48	TRANSISTOR 2SB1588-OPY			
Q770	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
⚠Q803	8-729-030-18	TRANSISTOR 2SD2525			
Q809	8-729-119-78	TRANSISTOR 2SC2785-HFE			
		< RESISTOR >			
R610	1-249-421-11	CARBON	2.2K	5%	1/4W
R611	1-249-437-11	CARBON	47K	5%	1/4W
R613	1-249-414-11	CARBON	560	5%	1/4W

Ref. No.	Part No.	Description			Remark
⚠R614	1-249-405-11	CARBON	100	5%	1/4W F
⚠R615	1-249-405-11	CARBON	100	5%	1/4W F
⚠R616	1-233-352-21	ENCAPSULATED	COMPONENT		
R620	1-249-419-11	CARBON	1.5K	5%	1/4W
R621	1-249-427-11	CARBON	6.8K	5%	1/4W
R623	1-249-437-11	CARBON	47K	5%	1/4W
R631	1-249-425-11	CARBON	4.7K	5%	1/4W
R632	1-249-425-11	CARBON	4.7K	5%	1/4W
R660	1-249-421-11	CARBON	2.2K	5%	1/4W
R661	1-249-437-11	CARBON	47K	5%	1/4W
R663	1-249-414-11	CARBON	560	5%	1/4W
⚠R664	1-249-405-11	CARBON	100	5%	1/4W F
⚠R665	1-249-405-11	CARBON	100	5%	1/4W F
⚠R666	1-233-352-21	ENCAPSULATED	COMPONENT		
R670	1-249-419-11	CARBON	1.5K	5%	1/4W
R671	1-249-427-11	CARBON	6.8K	5%	1/4W
R673	1-249-437-11	CARBON	47K	5%	1/4W
R710	1-249-421-11	CARBON	2.2K	5%	1/4W
R711	1-249-437-11	CARBON	47K	5%	1/4W
R713	1-249-414-11	CARBON	560	5%	1/4W
⚠R714	1-249-405-11	CARBON	100	5%	1/4W F
⚠R715	1-249-405-11	CARBON	100	5%	1/4W F
⚠R716	1-233-352-21	ENCAPSULATED	COMPONENT		
R720	1-249-419-11	CARBON	1.5K	5%	1/4W
R721	1-249-427-11	CARBON	6.8K	5%	1/4W
R723	1-249-437-11	CARBON	47K	5%	1/4W
R724	1-249-429-11	CARBON	10K	5%	1/4W
R725	1-249-429-11	CARBON	10K	5%	1/4W
R726	1-249-417-11	CARBON	1K	5%	1/4W
R727	1-249-427-11	CARBON	6.8K	5%	1/4W
R731	1-249-425-11	CARBON	4.7K	5%	1/4W
R732	1-249-425-11	CARBON	4.7K	5%	1/4W
R733	1-249-425-11	CARBON	4.7K	5%	1/4W
R734	1-249-425-11	CARBON	4.7K	5%	1/4W
R740	1-260-100-11	CARBON	1.2K	5%	1/2W
R741	1-260-100-11	CARBON	1.2K	5%	1/2W
R760	1-249-421-11	CARBON	2.2K	5%	1/4W
R761	1-249-437-11	CARBON	47K	5%	1/4W
R763	1-249-414-11	CARBON	560	5%	1/4W
⚠R764	1-249-405-11	CARBON	100	5%	1/4W F
⚠R765	1-249-405-11	CARBON	100	5%	1/4W F
⚠R766	1-233-352-21	ENCAPSULATED	COMPONENT		
R770	1-249-419-11	CARBON	1.5K	5%	1/4W
R771	1-249-427-11	CARBON	6.8K	5%	1/4W
R773	1-249-437-11	CARBON	47K	5%	1/4W
R790	1-260-100-11	CARBON	1.2K	5%	1/2W
R791	1-260-100-11	CARBON	1.2K	5%	1/2W
⚠R806	1-247-739-11	CARBON	100	5%	1/2W F
R807	1-249-425-11	CARBON	4.7K	5%	1/4W
R823	1-249-437-11	CARBON	47K	5%	1/4W
R824	1-249-425-11	CARBON	4.7K	5%	1/4W

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Ref. No.	Part No.	Description			Remark
		< RELAY >			
RY702	1-515-793-11	RELAY			
RY801	1-755-026-11	RELAY			(U)
RY851	1-515-918-11	RELAY			(C)
RY852	1-515-918-11	RELAY			(C)
*	A-6794-368-A	MP-46 BOARD, COMPLETE			(U)
*	A-6794-378-A	MP-46 BOARD, COMPLETE			(C)
		**********			
		(Ref.No.6,000 series)			
		< CAPACITOR >			
C601	1-126-963-11	ELECT	4.7uF	20%	50V
C602	1-162-282-31	CERAMIC	100PF	10%	50V
C603	1-126-933-11	ELECT	100uF	20%	10V
C605	1-102-233-00	CERAMIC	33PF	10%	500V
C651	1-126-963-11	ELECT	4.7uF	20%	50V
C652	1-162-282-31	CERAMIC	100PF	10%	50V
C653	1-126-933-11	ELECT	100uF	20%	10V
C655	1-102-233-00	CERAMIC	33PF	10%	500V
C701	1-126-963-11	ELECT	4.7uF	20%	50V
C702	1-162-282-31	CERAMIC	100PF	10%	50V
C703	1-126-933-11	ELECT	100uF	20%	10V
C705	1-102-233-00	CERAMIC	33PF	10%	500V
C740	1-128-563-11	ELECT	100uF	20%	100V
C741	1-128-563-11	ELECT	100uF	20%	100V
C742	1-126-923-11	ELECT	220uF	20%	10V
C751	1-126-963-11	ELECT	4.7uF	20%	50V
C752	1-162-282-31	CERAMIC	100PF	10%	50V
C753	1-126-933-11	ELECT	100uF	20%	10V
C755	1-102-233-00	CERAMIC	33PF	10%	500V
		< CONNECTOR >			
CN304	1-506-473-11	PIN, CONNECTOR 8P			
CN601	1-764-810-11	CONNECTOR, BOARD TO BOARD 8P			
CN701	1-764-810-11	CONNECTOR, BOARD TO BOARD 8P			
		< IC >			
IC701	8-759-326-52	IC uPC2581V			
IC702	8-759-326-52	IC uPC2581V			
		< TRANSISTOR >			
Q740	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q741	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
		< RESISTOR >			
R601	1-249-417-11	CARBON	1K	5%	1/4W
R602	1-249-439-11	CARBON	68K	5%	1/4W
R603	1-249-410-11	CARBON	270	5%	1/4W (U)
R603	1-249-411-11	CARBON	330	5%	1/4W (C)
R604	1-249-439-11	CARBON	68K	5%	1/4W
R651	1-249-417-11	CARBON	1K	5%	1/4W
R652	1-249-439-11	CARBON	68K	5%	1/4W
R653	1-249-412-11	CARBON	390	5%	1/4W (U)
R653	1-249-413-11	CARBON	470	5%	1/4W (C)
R654	1-249-439-11	CARBON	68K	5%	1/4W
R701	1-249-417-11	CARBON	1K	5%	1/4W
R702	1-249-439-11	CARBON	68K	5%	1/4W
R703	1-249-412-11	CARBON	390	5%	1/4W (U)
R703	1-249-413-11	CARBON	470	5%	1/4W (C)
R704	1-249-439-11	CARBON	68K	5%	1/4W
⚠R740	1-212-857-00	FUSIBLE	10	5%	1/4W F
⚠R741	1-212-857-00	FUSIBLE	10	5%	1/4W F
R742	1-249-417-11	CARBON	1K	5%	1/4W
R743	1-249-417-11	CARBON	1K	5%	1/4W
R744	1-249-425-11	CARBON	4.7K	5%	1/4W
R745	1-249-435-11	CARBON	33K	5%	1/4W
R751	1-249-417-11	CARBON	1K	5%	1/4W
R752	1-249-439-11	CARBON	68K	5%	1/4W
R753	1-249-412-11	CARBON	390	5%	1/4W (U)
R753	1-249-413-11	CARBON	470	5%	1/4W (C)
R754	1-249-439-11	CARBON	68K	5%	1/4W
*	A-6794-362-A	PS-399 BOARD, COMPLETE			
		**********			
		(Ref.No.8,000 series)			
*	3-951-893-01	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2			
		< CAPACITOR >			
C221	1-126-935-11	ELECT	470uF	20%	16V
C222	1-126-926-11	ELECT	1000uF	20%	10V
C225	1-128-551-11	ELECT	22uF	20%	25V
C231	1-128-499-11	ELECT	220uF	20%	16V
C232	1-124-248-00	ELECT	22uF	20%	35V
C233	1-126-934-11	ELECT	220uF	20%	16V
C241	1-126-967-11	ELECT	47uF	20%	16V
C242	1-126-933-11	ELECT	100uF	20%	16V
C261	1-126-967-11	ELECT	47uF	20%	10V
C262	1-126-924-11	ELECT	330uF	20%	10V
C271	1-126-924-11	ELECT	330uF	20%	10V
C281	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C282	1-126-967-11	ELECT	47uF	20%	16V
C283	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C284	1-126-967-11	ELECT	47uF	20%	50V
C285	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C286	1-126-967-11	ELECT	47uF	20%	50V
C287	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C288	1-126-967-11	ELECT	47uF	20%	50V
C289	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C290	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C291	1-126-947-11	ELECT	47uF	20%	35V

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Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
* CN201	1-564-321-21	PIN, CONNECTOR 2P			
CN202	1-506-480-11	PIN, CONNECTOR 15P			
CN203	1-568-788-21	PIN, CONNECTOR 11P			
CN204	1-506-482-11	PIN, CONNECTOR 3P			
		< COMPOSITION CIRCUIT BLOCK >			
⚠CP201	1-468-189-11	POWER BLOCK			
⚠CP202	1-473-301-11	CONVERTER UNIT, DC/DC			
		< DIODE >			
⚠D231	8-719-200-82	DIODE 11ES2			
D261	8-719-911-19	DIODE 1SS119-25			
⚠D262	8-719-109-85	DIODE RD5.1ES-B2			
		< EARTH TERMINAL >			
* EP201	1-537-738-21	TERMINAL, EARTH			
		< IC >			
⚠IC241	8-759-189-48	IC PQ12RE11			
		< COIL >			
⚠L221	1-403-588-11	COIL, CHOKE 22uH			
⚠L222	1-403-588-11	COIL, CHOKE 22uH			
L281	1-408-970-21	INDUCTOR 10uH			
L282	1-414-142-11	INDUCTOR 1uH			
L283	1-414-142-11	INDUCTOR 1uH			
		< IC LINK >			
⚠PS221	1-532-637-00	LINK, IC 1.0A (ICP-N25)			
⚠PS222	1-532-679-00	LINK, IC 0.6A (ICP-N15)			
⚠PS223	1-532-637-00	LINK, IC 1.0A (ICP-N25)			
⚠PS281	1-532-679-00	LINK, IC 0.6A (ICP-N15)			
		< TRANSISTOR >			
⚠Q231	8-729-140-93	TRANSISTOR 2SB733-34			
Q232	8-729-900-53	TRANSISTOR DTC114EK			
⚠Q261	8-729-140-98	TRANSISTOR 2SD773-34			
Q291	8-729-010-25	TRANSISTOR MSD601-RT1			
		< RESISTOR >			
R225	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R231	1-249-417-11	CARBON	1K	5%	1/4W
⚠R232	1-216-430-11	METAL OXIDE	390	5%	1W F
R233	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R241	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R261	1-249-412-11	CARBON	390	5%	1/4W
⚠R283	1-216-480-11	METAL OXIDE	820	5%	3W F
R291	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R292	1-216-089-00	METAL GLAZE	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
*	A-6794-360-A	RF-44 BOARD, COMPLETE			
		**********			
		(Ref.No.7,000 series)			
		< CAPACITOR >			
C763	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C764	1-126-933-11	ELECT	100uF	20%	10V
C765	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN761	1-573-128-11	PIN, CONNECTOR 5P			
		< COIL >			
L762	1-410-501-11	INDUCTOR 2.2uH			
		< RESISTOR >			
R762	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R763	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R768	1-216-049-11	METAL GLAZE	1K	5%	1/10W
		< RF MODULATOR >			
⚠RF761	1-466-989-11	MODULATOR, RF (VHF/UHF)			
*	A-6794-369-A	RG-42 BOARD, COMPLETE			
		**********			
		(Ref.No.5,000 series)			
		< CAPACITOR >			
C807	1-126-964-11	ELECT	10uF	20%	50V
C808	1-126-964-11	ELECT	10uF	20%	50V
C809	1-126-960-11	ELECT	1uF	20%	50V
C810	1-126-960-11	ELECT	1uF	20%	50V
C811	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
CN805	1-506-473-11	PIN, CONNECTOR 8P			
		< IC >			
⚠IC801	8-759-604-39	IC AN6291			
⚠IC802	8-759-604-45	IC M5F79M12			
		< TRANSISTOR >			
⚠Q804	8-729-209-15	TRANSISTOR 2SD2012			
*	A-6796-575-A	RP-226 BOARD, COMPLETE			
		**********			
		(Ref.No.1,000 series)			
		< CAPACITOR >			
C501	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C502	1-163-229-11	CERAMIC CHIP	12PF	5%	50V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurite. Ne les remplacer que par une pièce portant le numéro spécifié.

RP-226

Ref. No.	Part No.	Description			Remark
C503	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C504	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C505	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C506	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C507	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C508	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C509	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C510	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C511	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C512	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C513	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C514	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C515	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C516	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C517	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C518	1-124-584-00	ELECT	100uF	20%	10V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C523	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C524	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C525	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C526	1-124-584-00	ELECT	100uF	20%	10V
C527	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C528	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C529	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C531	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C532	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C760	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C761	1-124-584-00	ELECT	100uF	20%	10V
C762	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C763	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C764	1-124-257-00	ELECT	2.2uF	20%	50V
C765	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C767	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C768	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C769	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C770	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C773	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C774	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C775	1-126-160-11	ELECT	1uF	20%	50V
C776	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C901	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C902	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C903	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C904	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C906	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C907	1-126-967-11	ELECT	47uF	20%	16V
C909	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C911	1-216-295-00	CONDUCTOR, CHIP		(2012)	
C912	1-163-241-11	CERAMIC CHIP	39PF	5%	50V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN501	1-766-986-11	CONNECTOR, FFC/FPC 13P			
* CN502	1-564-029-00	PIN, CONNECTOR 4P			
CN503	1-766-720-11	CONNECTOR, BOARD TO BOARD 17P			
CN601	1-568-852-11	CONNECTOR, FFC/FPC 9P			
CN602	1-770-514-41	CONNECTOR, FFC/FPC 5P			
CN603	1-573-826-11	CONNECTOR, BOARD TO BOARD 12P			
CN701	1-766-724-11	CONNECTOR, BOARD TO BOARD 7P			
		< IC >			
IC501	8-759-352-17	IC HA118195NT			
IC760	8-759-055-49	IC AN3327K			
		< JUMPER RESISTOR >			
JR502	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR503	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR504	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR505	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR506	1-216-296-00	CONDUCTOR, CHIP		(3216)	
JR507	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR508	1-216-295-00	CONDUCTOR, CHIP		(2012)	
JR509	1-216-295-00	CONDUCTOR, CHIP		(2012)	
		< JUMPER RESISTOR >			
JS901	1-216-296-00	CONDUCTOR, CHIP		(3216)	
		< COIL >			
L501	1-414-189-31	INDUCTOR 100uH			
L502	1-414-189-31	INDUCTOR 100uH			
L503	1-410-525-11	INDUCTOR 220uH			
L760	1-414-189-31	INDUCTOR 100uH			
L901	1-414-189-31	INDUCTOR 100uH			
L903	1-410-516-11	INDUCTOR 39uH			
L904	1-410-512-11	INDUCTOR 18uH			
L906	1-410-518-21	INDUCTOR 56uH			
		< TRANSISTOR >			
Q501	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q502	8-729-216-21	TRANSISTOR 2SA1162-Y			
Q901	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q904	8-729-216-21	TRANSISTOR 2SA1162-Y			
Q905	8-729-230-49	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R501	1-216-044-00	METAL CHIP	620	5%	1/10W
R502	1-216-044-00	METAL CHIP	620	5%	1/10W
R503	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R504	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R505	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R506	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R507	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R509	1-216-075-00	METAL CHIP	12K	5%	1/10W
R510	1-216-081-00	METAL CHIP	22K	5%	1/10W
R511	1-216-081-00	METAL CHIP	22K	5%	1/10W
R512	1-216-224-00	METAL GLAZE	12K	5%	1/8W
R513	1-216-081-00	METAL CHIP	22K	5%	1/10W
R514	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R515	1-216-081-00	METAL CHIP	22K	5%	1/10W
R516	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R517	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R518	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R519	1-163-031-11	CERAMIC CHIP	0.01uF		50V
R520	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R762	1-216-035-00	METAL CHIP	270	5%	1/10W
R763	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R765	1-216-033-00	METAL CHIP	220	5%	1/10W
R766	1-249-418-11	CARBON	1.2K	5%	1/4W
R767	1-216-035-00	METAL CHIP	270	5%	1/10W
R768	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R771	1-216-079-00	METAL CHIP	18K	5%	1/10W
R776	1-216-073-00	METAL CHIP	10K	5%	1/10W
R901	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R902	1-216-077-00	METAL CHIP	15K	5%	1/10W
R903	1-216-075-00	METAL CHIP	12K	5%	1/10W
R904	1-216-037-00	METAL CHIP	330	5%	1/10W
R905	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R906	1-216-043-00	METAL GLAZE	560	5%	1/10W
R908	1-216-039-00	METAL CHIP	390	5%	1/10W
R912	1-216-075-00	METAL CHIP	12K	5%	1/10W
R913	1-216-077-00	METAL CHIP	15K	5%	1/10W
R914	1-216-037-00	METAL CHIP	330	5%	1/10W
R916	1-216-037-00	METAL CHIP	330	5%	1/10W
R917	1-216-047-00	METAL GLAZE	820	5%	1/10W
R918	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R919	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R920	1-216-075-00	METAL CHIP	12K	5%	1/10W
R921	1-216-077-00	METAL CHIP	15K	5%	1/10W
R931	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R932	1-216-295-00	CONDUCTOR, CHIP		(2012)	

*	A-6794-370-A	SP-38 BOARD, COMPLETE	
		**********	
		(Ref.No.6,000 series)	
		< CAPACITOR >	
C611	1-137-372-11	FILM	0.022uF 5% 50V
C661	1-137-372-11	FILM	0.022uF 5% 50V
C711	1-137-372-11	FILM	0.022uF 5% 50V
C761	1-137-372-11	FILM	0.022uF 5% 50V
		< CONNECTOR >	
CN706	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P	
CN707	1-506-468-11	PIN, CONNECTOR 3P	

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D610	8-719-987-63	DIODE 1N4148M			
D710	8-719-987-63	DIODE 1N4148M			
		< JACK >			
J701	1-774-785-11	JACK, PIN 1P (MIX)			
		< COIL >			
⚠L601	1-420-872-00	COIL, AIR-CORE			
⚠L651	1-420-872-00	COIL, AIR-CORE			
⚠L701	1-420-872-00	COIL, AIR-CORE			
⚠L751	1-420-872-00	COIL, AIR-CORE			
		< RESISTOR >			
⚠R617	1-249-393-11	CARBON	10	5%	1/4W
R618	1-249-389-11	CARBON	4.7	5%	1/4W
R631	1-247-883-00	CARBON	150K	5%	1/4W
⚠R667	1-249-393-11	CARBON	10	5%	1/4W
R668	1-249-389-11	CARBON	4.7	5%	1/4W
⚠R717	1-249-393-11	CARBON	10	5%	1/4W
R718	1-249-389-11	CARBON	4.7	5%	1/4W
R731	1-247-883-00	CARBON	150K	5%	1/4W
R734	1-249-429-11	CARBON	10K	5%	1/4W
⚠R767	1-249-393-11	CARBON	10	5%	1/4W
R768	1-249-389-11	CARBON	4.7	5%	1/4W
R781	1-247-883-00	CARBON	150K	5%	1/4W
		< RELAY >			
RY601	1-515-920-11	RELAY (24V)			
RY701	1-515-920-11	RELAY (24V)			
		< TERMINAL >			
TM601	1-537-510-11	TERMINAL BOARD (SPEAKER) (6P) (SURROUND SPEAKER)			
TM701	1-537-240-11	TERMINAL BOARD (CHECKER PIN) (FRONT SPEAKER)			

*	A-6796-574-A	SR-24 BOARD, COMPLETE	
		**********	
		(Ref.No.5,000 series)	
	3-976-432-01	INSULATING SHEET (TUN)	
	3-976-433-01	COVER (TUN), SHIELD	
	3-977-250-01	CUSHION, CONDUCTIVE	
		< CAPACITOR >	
C302	1-126-934-11	ELECT	220uF 20% 16V
C303	1-130-489-00	MYLAR	0.033uF 5% 50V
C304	1-137-365-11	FILM	0.0015uF 5% 50V
C305	1-130-489-00	MYLAR	0.033uF 5% 50V
C306	1-126-960-11	ELECT	1uF 20% 50V
C307	1-126-964-11	ELECT	10uF 20% 50V

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Ref. No.	Part No.	Description			Remark
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-162-291-31	CERAMIC	560PF	10%	50V
C310	1-126-962-11	ELECT	3.3uF	20%	50V
C311	1-126-961-11	ELECT	2.2uF	20%	50V
C312	1-126-934-11	ELECT	220uF	20%	16V
C313	1-126-934-11	ELECT	220uF	20%	16V
C314	1-136-165-00	FILM	0.1uF	5%	50V
C316	1-126-964-11	ELECT	10uF	20%	50V
C317	1-126-933-11	ELECT	100uF	20%	16V
C318	1-137-363-00	FILM	680PF	5%	50V
C322	1-126-962-11	ELECT	3.3uF	20%	50V
C323	1-136-173-00	FILM	0.47uF	5%	50V
C324	1-126-967-11	ELECT	47uF	20%	16V
C325	1-136-165-00	FILM	0.1uF	5%	50V
C326	1-136-165-00	FILM	0.1uF	5%	50V
C327	1-126-959-11	ELECT	0.47uF	20%	50V
C328	1-126-963-11	ELECT	4.7uF	20%	50V
C329	1-126-959-11	ELECT	0.47uF	20%	50V
C330	1-126-963-11	ELECT	4.7uF	20%	50V
C331	1-124-250-11	ELECT	0.15uF	20%	50V
C332	1-126-962-11	ELECT	3.3uF	20%	50V
C333	1-124-250-11	ELECT	0.15uF	20%	50V
C334	1-137-372-11	FILM	0.022uF	5%	50V
C335	1-136-161-00	FILM	0.047uF	5%	50V
C336	1-126-934-11	ELECT	220uF	20%	16V
C337	1-126-964-11	ELECT	10uF	20%	50V
C338	1-126-964-11	ELECT	10uF	20%	50V
C339	1-126-964-11	ELECT	10uF	20%	50V
C340	1-126-964-11	ELECT	10uF	20%	50V
C341	1-126-934-11	ELECT	220uF	20%	16V
C342	1-126-962-11	ELECT	3.3uF	20%	50V
C343	1-126-962-11	ELECT	3.3uF	20%	50V
C344	1-136-165-00	FILM	0.1uF	5%	50V
C345	1-136-165-00	FILM	0.1uF	5%	50V
C346	1-126-959-11	ELECT	0.47uF	20%	50V
C347	1-126-963-11	ELECT	4.7uF	20%	50V
C348	1-126-959-11	ELECT	0.47uF	20%	50V
C349	1-126-963-11	ELECT	4.7uF	20%	50V
C350	1-124-250-11	ELECT	0.15uF	20%	50V
C351	1-126-962-11	ELECT	3.3uF	20%	50V
C352	1-124-250-11	ELECT	0.15uF	20%	50V
C355	1-164-159-11	CERAMIC	0.1uF		50V
C356	1-164-159-11	CERAMIC	0.1uF		50V
C357	1-164-159-11	CERAMIC	0.1uF		50V
C359	1-126-963-11	ELECT	4.7uF	20%	50V
C360	1-126-963-11	ELECT	4.7uF	20%	50V
C363	1-164-159-11	CERAMIC	0.1uF		50V
C365	1-126-966-11	ELECT	33uF	20%	50V
C366	1-164-159-11	CERAMIC	0.1uF		50V
C370	1-126-959-11	ELECT	0.47uF	20%	50V
C371	1-162-209-31	CERAMIC	27PF	5%	50V
C381	1-164-159-11	CERAMIC	0.1uF		50V
C401	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remark
C402	1-126-963-11	ELECT	4.7uF	20%	50V
C403	1-126-964-11	ELECT	10uF	20%	50V
C404	1-136-171-00	FILM	0.33uF	5%	50V
C405	1-130-489-00	MYLAR	0.033uF	5%	50V
C406	1-126-963-11	ELECT	4.7uF	20%	50V
C407	1-162-209-31	CERAMIC	27PF	5%	50V
C408	1-126-967-11	ELECT	47uF	20%	16V
C409	1-164-159-11	CERAMIC	0.1uF		50V
C410	1-126-967-11	ELECT	47uF	20%	16V
C411	1-137-371-11	FILM	0.015uF	5%	50V
C412	1-136-163-00	FILM	0.068uF	5%	50V
C413	1-137-457-11	FILM	0.0027uF	5%	50V
C414	1-126-964-11	ELECT	10uF	20%	50V
C415	1-137-372-11	FILM	0.022uF	5%	50V
C416	1-126-963-11	ELECT	4.7uF	20%	50V
C433	1-164-159-11	CERAMIC	0.1uF		50V
C434	1-162-286-31	CERAMIC	220PF	10%	50V
C435	1-162-286-31	CERAMIC	220PF	10%	50V
C454	1-136-171-00	FILM	0.33uF	5%	50V
C455	1-130-489-00	MYLAR	0.033uF	5%	50V
C456	1-126-963-11	ELECT	4.7uF	20%	50V
C457	1-162-209-31	CERAMIC	27PF	5%	50V
C458	1-126-967-11	ELECT	47uF	20%	16V
C459	1-164-159-11	CERAMIC	0.1uF		50V
C460	1-126-967-11	ELECT	47uF	20%	16V
C461	1-137-371-11	FILM	0.015uF	5%	50V
C462	1-136-163-00	FILM	0.068uF	5%	50V
C463	1-137-457-11	FILM	0.0027uF	5%	50V
C464	1-126-964-11	ELECT	10uF	20%	50V
C465	1-137-372-11	FILM	0.022uF	5%	50V
C820	1-126-967-11	ELECT	47uF	20%	16V
C821	1-126-967-11	ELECT	47uF	20%	16V
C822	1-126-967-11	ELECT	47uF	20%	16V
C823	1-126-967-11	ELECT	47uF	20%	16V
C824	1-126-967-11	ELECT	47uF	20%	16V
C825	1-126-967-11	ELECT	47uF	20%	16V

< CONNECTOR >

CN201	1-770-530-41	CONNECTOR, FFC/FPC 23P
CN202	1-770-522-41	CONNECTOR, FFC/FPC 15P
CN301	1-506-475-11	PIN, CONNECTOR 10P
CN403	1-506-482-11	PIN, CONNECTOR 3P
CN803	1-573-737-21	PIN, CONNECTOR 10P
CN804	1-573-735-21	PIN, CONNECTOR 8P
CN805	1-564-517-11	PLUG, CONNECTOR 2P

< DIODE >

D370	8-719-987-63	DIODE 1N4148M
D371	8-719-987-63	DIODE 1N4148M
D372	8-719-933-33	DIODE HZS6A1L
D373	8-719-933-50	DIODE HZS7C2L
D374	8-719-000-60	DIODE UZL-6M2

Ref. No.	Part No.	Description			Remark
D375	8-719-987-63	DIODE 1N4148M			
D376	8-719-001-64	DIODE UZL-12L2			
D401	8-719-987-63	DIODE 1N4148M			
D817	8-719-001-30	DIODE UZL-9H3			
D821	8-719-910-25	DIODE HZ12B2L			
		< IC >			
IC300	8-759-341-23	IC LV1011			
IC301	8-759-248-74	IC LA2785			
IC302	8-759-634-51	IC M5218AP			
IC303	8-759-634-51	IC M5218AP			
IC401	8-759-072-32	IC TC9184P			
IC402	8-759-634-51	IC M5218AP			
IC403	8-759-708-05	IC NJM78L05A			
		< COIL >			
L301	1-410-509-11	INDUCTOR 10uH			
L302	1-410-509-11	INDUCTOR 10uH			
		< TRANSISTOR >			
Q305	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q306	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q307	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q308	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q371	8-729-119-79	TRANSISTOR 2SC2785-FEK			
Q372	8-729-900-80	TRANSISTOR DTC114ES			
Q374	8-729-119-79	TRANSISTOR 2SC2785-FEK			
Q401	8-729-202-67	TRANSISTOR 2SK246-GR3			
Q402	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q403	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q451	8-729-202-67	TRANSISTOR 2SK246-GR3			
Q452	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q453	8-729-922-37	TRANSISTOR 2SD2144S-UVW			
Q733	8-729-422-57	TRANSISTOR UN4111			
Q808	8-729-180-92	TRANSISTOR 2SD809-K			
Q821	8-729-180-92	TRANSISTOR 2SD809-K			
		< RESISTOR >			
R300	1-247-903-00	CARBON	1M	5%	1/4W
R303	1-249-439-11	CARBON	68K	5%	1/4W
R304	1-249-441-11	CARBON	100K	5%	1/4W
R306	1-249-436-11	CARBON	39K	5%	1/4W
R307	1-247-862-11	CARBON	20K	5%	1/4W
R308	1-249-421-11	CARBON	2.2K	5%	1/4W
R309	1-249-421-11	CARBON	2.2K	5%	1/4W
R352	1-249-441-11	CARBON	100K	5%	1/4W
R353	1-249-425-11	CARBON	4.7K	5%	1/4W
R354	1-249-425-11	CARBON	4.7K	5%	1/4W
R355	1-249-425-11	CARBON	4.7K	5%	1/4W
R356	1-249-425-11	CARBON	4.7K	5%	1/4W
R357	1-249-441-11	CARBON	100K	5%	1/4W
R358	1-249-441-11	CARBON	100K	5%	1/4W
R359	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R360	1-249-425-11	CARBON	4.7K	5%	1/4W
R361	1-249-429-11	CARBON	10K	5%	1/4W
R362	1-249-429-11	CARBON	10K	5%	1/4W
R363	1-249-411-11	CARBON	330	5%	1/4W
R372	1-247-895-00	CARBON	470K	5%	1/4W
R373	1-249-429-11	CARBON	10K	5%	1/4W
R374	1-247-895-00	CARBON	470K	5%	1/4W
R375	1-249-417-11	CARBON	1K	5%	1/4W
R376	1-249-439-11	CARBON	68K	5%	1/4W
⚠R377	1-249-421-11	CARBON	2.2K	5%	1/4W F
⚠R378	1-249-385-11	CARBON	2.2	5%	1/6W F
R380	1-249-418-11	CARBON	1.2K	5%	1/4W
R381	1-249-421-11	CARBON	2.2K	5%	1/4W
R382	1-249-421-11	CARBON	2.2K	5%	1/4W
R401	1-247-903-00	CARBON	1M	5%	1/4W
R402	1-249-436-11	CARBON	39K	5%	1/4W
R403	1-249-441-11	CARBON	100K	5%	1/4W
R404	1-249-441-11	CARBON	100K	5%	1/4W
R405	1-247-843-11	CARBON	3.3K	5%	1/4W
R406	1-247-883-00	CARBON	150K	5%	1/4W
R407	1-249-412-11	CARBON	390	5%	1/4W
R408	1-249-427-11	CARBON	6.8K	5%	1/4W
R409	1-249-427-11	CARBON	6.8K	5%	1/4W
R410	1-249-440-11	CARBON	82K	5%	1/4W
R411	1-247-895-00	CARBON	470K	5%	1/4W
R412	1-249-419-11	CARBON	1.5K	5%	1/4W
R413	1-249-425-11	CARBON	4.7K	5%	1/4W
R414	1-247-897-11	CARBON	560K	5%	1/4W
R415	1-249-436-11	CARBON	39K	5%	1/4W
R416	1-249-434-11	CARBON	27K	5%	1/4W
R417	1-249-426-11	CARBON	5.6K	5%	1/4W
R418	1-249-418-11	CARBON	1.2K	5%	1/4W
R419	1-249-417-11	CARBON	1K	5%	1/4W
R420	1-247-807-31	CARBON	100	5%	1/4W
R421	1-249-417-11	CARBON	1K	5%	1/4W
R422	1-249-417-11	CARBON	1K	5%	1/4W
R423	1-249-441-11	CARBON	100K	5%	1/4W
R426	1-249-425-11	CARBON	4.7K	5%	1/4W
R427	1-249-441-11	CARBON	100K	5%	1/4W
R428	1-249-417-11	CARBON	1K	5%	1/4W
R429	1-249-441-11	CARBON	100K	5%	1/4W
R430	1-247-903-00	CARBON	1M	5%	1/4W
R452	1-249-436-11	CARBON	39K	5%	1/4W
R454	1-249-441-11	CARBON	100K	5%	1/4W
R455	1-247-843-11	CARBON	3.3K	5%	1/4W
R456	1-247-883-00	CARBON	150K	5%	1/4W
R457	1-249-412-11	CARBON	390	5%	1/4W
R458	1-249-427-11	CARBON	6.8K	5%	1/4W
R459	1-249-427-11	CARBON	6.8K	5%	1/4W
R460	1-249-440-11	CARBON	82K	5%	1/4W
R461	1-247-895-00	CARBON	470K	5%	1/4W
R462	1-249-419-11	CARBON	1.5K	5%	1/4W
R463	1-249-425-11	CARBON	4.7K	5%	1/4W

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurite. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R464	1-247-897-11	CARBON	560K	5%	1/4W
R465	1-249-436-11	CARBON	39K	5%	1/4W
R466	1-249-434-11	CARBON	27K	5%	1/4W
R467	1-249-426-11	CARBON	5.6K	5%	1/4W
R468	1-249-418-11	CARBON	1.2K	5%	1/4W
R469	1-249-417-11	CARBON	1K	5%	1/4W
R470	1-247-807-31	CARBON	100	5%	1/4W
R472	1-249-417-11	CARBON	1K	5%	1/4W
R476	1-249-425-11	CARBON	4.7K	5%	1/4W
R477	1-249-441-11	CARBON	100K	5%	1/4W
R478	1-249-417-11	CARBON	1K	5%	1/4W
R479	1-249-441-11	CARBON	100K	5%	1/4W
R480	1-247-903-00	CARBON	1M	5%	1/4W
R825	1-249-407-11	CARBON	150	5%	1/4W
R826	1-249-421-11	CARBON	2.2K	5%	1/4W
⚠R827	1-249-385-11	CARBON	2.2	5%	1/6W F
		< TERMINAL >			
TM001	1-537-769-11	TERMINAL BOARD (ANTENNA)			
		< TUNER >			
⚠TU001	1-233-666-11	ENCAPSULATED COMPONENT			
		< VIBRATOR >			
X301	1-579-952-21	VIBRATOR, CERAMIC (8MHz)			
*	A-6794-371-A	TI-46 BOARD, COMPLETE			
		**********			
		(Ref.No.8,000 series)			
		< CONNECTOR >			
CN901	1-564-321-00	PIN, CONNECTOR 2P			
*	A-6794-372-A	TO-13 BOARD, COMPLETE			
		**********			
		(Ref.No.8,000 series)			
		< CONNECTOR >			
CN902	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P			
		< RESISTOR >			
⚠R901	1-249-377-11	CARBON	0.47	5%	1/4W F
⚠R902	1-249-377-11	CARBON	0.47	5%	1/4W F

Ref. No.	Part No.	Description			Remark
*	A-6796-577-A	VR-64 BOARD, COMPLETE			
		**********			
		(Ref.No.5,000 series)			
		< CAPACITOR >			
C430	1-126-960-11	ELECT	1uF	20%	50V
C431	1-126-960-11	ELECT	1uF	20%	50V
C432	1-164-159-11	CERAMIC	0.1uF		50V
C433	1-126-964-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
CN312	1-506-475-11	PIN, CONNECTOR 10P			
CN313	1-506-473-11	PIN, CONNECTOR 8P			
CN401	1-506-469-11	PIN, CONNECTOR 4P			
CN402	1-506-468-11	PIN, CONNECTOR 3P			
CN708	1-506-468-11	PIN, CONNECTOR 3P			
CN709	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D431	8-719-933-36	DIODE HZS6B1L			
		< IC >			
IC404	8-759-822-09	IC LB1641			
		< RESISTOR >			
R401	1-247-885-00	CARBON	180K	5%	1/4W
R402	1-247-885-00	CARBON	180K	5%	1/4W
R403	1-247-885-00	CARBON	180K	5%	1/4W
R404	1-247-885-00	CARBON	180K	5%	1/4W
		< VARIABLE RESISTOR >			
RV404	1-241-816-11	RES, VAR, CARBON 100KX4 (MASTER VOLUME)			
		MISCELLANEOUS			
		**********			
68	1-777-620-11	CABLE, FLAT (FUF-16) 19P			
71	1-777-619-11	CABLE, FLAT (FSF-11) 23P			
105	1-782-224-11	CABLE, FLAT (FSI-2) 15P			
106	1-777-616-11	CABLE, FLAT (FRI-3) 5P			
112	1-782-223-11	CABLE, FLAT (FRI-4) 9P			
114	1-782-225-11	CABLE, FLAT (FII-2) 17P			
⚠119	1-769-743-11	CORD, POWER			
⚠120	1-526-882-00	OUTLET, AC			
125	1-543-798-11	FILTER, CLAMP (FERRITE CORE)			
211	1-506-485-11	PIN, CONNECTOR 6P			
268	8-848-576-02	DRUM ASSY, UPPER (DZR-45-R)			
269	8-848-666-11	DRUM ASSY, LOWER (DZL-51B/J-RP)			
310	1-766-723-11	CONNECTOR, BOARD TO BOARD 3P			
⚠F101	1-532-743-11	FUSE, GLASS CYLINDRICAL (DIA. 5)			
⚠F102	1-533-420-11	FUSE, GLASS CYLINDRICAL (DIA. 5)			
FE901	1-500-144-11	HEAD, FE			

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Ref. No.	Part No.	Description	Remark
M902	1-698-409-11	MOTOR, DC (CAPSTAN)	
M904	1-698-380-11	MOTOR, FAN (DC)	
S901	1-762-076-11	SWITCH, ROTARY (ENCODER)	
S902	1-762-844-11	SWITCH, ROTARY	
⚠T901	1-429-522-21	TRANSFORMER, POWER	(C)
⚠T901	1-429-699-21	TRANSFORMER, POWER	(U)

ACCESSORIES & PACKING MATERIALS
****

	1-475-119-11	COMMANDER, STANDARD (RMT-V209)	
	1-501-721-11	ANTENNA (LOOP) (AM)	
	1-551-086-31	CORD, CONNECTION (1.5m VIDEO CABLE)	
	1-696-592-11	CORD, CONNECTION (NTSC) (1.5m COAXIAL CABLE WITH F-TYPE)	
	1-696-863-11	CORD, CONNECTION (WIRE ANTENNA) (FM)	
	3-694-922-01	SHEET, PROTECTION	
	3-703-044-26	LABEL, CAUTION	(C)
	3-859-466-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-859-466-21	MANUAL, INSTRUCTION (FRENCH)	(C)
*	3-973-361-31	INDIVIDUAL CARTON	
*	3-973-362-01	CUSHION	
	3-976-320-01	REINFORCEMENT (UC)	(U)

****
HARDWARE LIST
****

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3
#3	7-628-254-15	SCREW +PS 2.6X6
#4	7-682-645-01	SCREW +PS 3X4
#5	7-624-106-04	STOP RING 3.0, TYPE -E
#6	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3
#7	7-682-547-04	SCREW +P 3X6
#8	7-685-881-09	SCREW +BVTT 4X8 (S)

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurite. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	STOP FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
$\overline{VPB}$	IC201 ㊽	O	H	H	H	L	L	L	L	L	L	H	H
RF SWP (SW30)	IC201 ①	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
QVD	IC201 ②	O	L	L	L	*2	*3	*3	*3	*3	*3	L	L
$\overline{SP}$	IC201 ㊸	O	*4	*4	*4	*5	*5	*5	*5	*5	*5	*4	*4
$\overline{SP}$/EP/LP	IC201 ⑫	O	*8	*8	*8	*5	*5	*5	*5	*5	*5	*8	*8
V SYNC	IC201 ㊻	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
REC CTL	IC201 ⑦	O	L	L	L	L	L	L	L	L	L	H	L
JOG	IC201 ㊼	O	L	L	L	L	H	H	L	L	L	L	L
ORC SETTEI	IC201 ㊶	O	L	L	L	L	L	L	L	L	L	*9	*9
$\overline{NTSC}$	IC201 ⑤	O	L	L	L	L	L	L	L	L	L	L	L

*1. Synchronized with drum rotation. 30 Hz 50% duty pulse.
*2. Normally "L". "H" when CTL signal is not generated.
*3. V period "H" pulse.
*4. Selected by REC mode. SP mode: "L"
*5. Selected by tape recording mode.
*6. Composite Sync signal (positive).
*7. "H" when menu screen or blue back screen.
*8. Selected by REC mode: "H" LP mode.
*9. "H" during APC measurement.

Mode / Signal	SP	LP	EP
$\overline{SP}$ ㊸	L	H	H
$\overline{SP}$/EP/LP ⑫	L	L	H

7-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	CUE	x 2	REVIEW	REC	REC • PAUSE	PB INDEX WRT/ERS
REC CTL	IC201 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
$\overline{\text{CAP STOP}}$	IC201 ㉟	O (O.D)	L	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	*3	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	
STEP PLS	IC201 ㊴	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	IC201 ㉕	O	L	L	L	L	L	L	L	L	L	L	L	H	L	H
CTL INDEX	IC201 ㉙	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
$\overline{\text{PB CTL}}$	IC201 ㊼	I	H	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H	
DRM PG	IC201 ㊽	I	*4	*1	*1	*5	*5	*1	*1	*1	*1	*1	*1	*1	*1	
DRM FG	IC201 ㊾	I	*4	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
CAP FG	IC201 ㊿	I	H/L	*6	*6	*5	*5	*6	H/L	*2	*6	*6	*6	*6	H/L	
CAP DA	IC201 ㊸	O	*8	*8	*8	*8	*8	*9	*8	*8	*9	*9	*9	*9	*8	
DRM DA	IC201 ㊹	O	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	
CTL STEP	IC201 ㊻	O	L	L	L	L	L	L	L	*11	L	L	L	L	L	

*1. 30 Hz pulse.
*2. Pulse at tape running.
*3. Reverse logic pulse of STEP PLS.
*4. "L" when drum rotation stop.
*5. Unstable period pulse.
*6. Pulse of period in proportion to tape speed.
*7. 360 Hz pulse.
*8. Approx. 2 msec period "H" or "L" pulse.
*9. Approx. 1.5 msec period "H" or "L" pulse.
*10. Approx. 3 msec period "H" or "L" pulse.
*11. "H" when FWD direction STEP drive.

7-3. SYSTEM CONTROL – MECHANISM INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREAD-ING	TAPE UNTHREAD-ING	STOP	FF	REW	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	PB • PAUSE
CAM LOAD	IC201 ⑬	O	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L
CAM UNLOAD	IC201 ⑭	O	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L
CAM 12V	IC201 ㉛	O		H	L	H	L											
MODE1	IC201 ㉚	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE2	IC201 ㉙	I	L	L	L	*1	*1	L	L	L	H	H	H	H	H	H	H	H
MODE3	IC201 ㉘	I	L	L	L	*1	*1	H	H	H	L	H	H	L	L	H	L	H
MODE4	IC201 ㉗	I	L	H	H	*1	*1	H	L	L	L	L	L	L	L	L	L	L
C IN (REC PRF)	IC201 ⑮	I	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
TREEL FG	IC201 ㊹	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
SREEL FG	IC201 ㊸	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
T/E LED	IC201 ㉜	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP TRQ1	IC201 ㉞	O (O.D)											*1					
CAP TRQ2	IC201 ㉝	O (O.D)										L	*1					L
CAP TRQ3	IC201 ⑧	O (O.D)							H	H			*1		H	H		
$\overline{\text{CAP STOP}}$	IC201 ㉟	O (O.D)	L	L	L	H	H	L	H	H	H	L	*5	H	H	H	H	L
CAP RVS	IC201 ⑫	O	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
CAP DA	IC201 ⑬	O																
T SENS	IC201 ⑥①	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	IC201 ⑥②	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. Uncertainty.
*2. "L" when erasing protection tab is bent, "H" when not bent.
*3. Pause of period in proportion to reel rotating speed.
*4. Approx. 2 msec period "H" pulse.
*5. Pulse at tape running.
*6. "L" when tape running and CAP RVS is "H".
*7. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

7-4. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	I/O level
$\overline{\text{ASURA RESET}}$	IC201 ㊵	I	Normally "H", "L" when service interruption is detected or restored.
$\overline{\text{ASURA CS}}$	IC201 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
S IN 0	IC201 ㊺	I	Serial communication data from timer microprocessor. V period "L" pulse.
S OUT 0	IC201 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
$\overline{\text{SCLK}}$	IC201 ㊼	I	Serial communication clock with timer microprocessor. V period "L" pulse.

7-5. SYSTEM CONTROL – Hi-Fi AUDIO BLOCK INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UNLOADING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
AF ENV	IC201 ㊾	I	AF RF envelope signal input terminal for automatic tracking.										
A MUTE	IC201 ㊷	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
$\overline{\text{NAREC P}}$	IC201 ⑪	O	L	L	L	L	L	L	L	L	L	H	L
AF REC $\overline{\text{P}}$	IC201 ④	O	L	L	L	L	L	L	L	L	L	H	L
AF SWP	IC201 ㉚	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
$\overline{\text{FULL ERS}}$	IC201 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 30 Hz 50% duty pulse approx. 5 msec delayed from RF SWP.

7-6. SYSTEM CONTROL – NORMAL AUDIO BLOCK INTERFACE (MA-304 BOARD IC201)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UNLOADING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
A MUTE	IC201 ㊷	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
$\overline{\text{NAREC P}}$	IC201 ⑪	O	L	L	L	L	L	L	L	L	L	H	L
$\overline{\text{FULL ERS}}$	IC201 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 30 Hz 50% duty pulse approx. 5 msec delayed from RF SWP.

7-7. SERVO/SYSTEM CONTROL MICROPROCESSOR PORT FUNCTION DESCRIPTION (MA-304 BOARD IC201 CXP87248A-035Q)

Pin No.	Pin Name	I/O	Function
1	RF SWP	O	RF switching pulse output.
2	QVD	O	Quasi VD pulse output.
3	QHD ENBL	O	Quasi HD voltage level control.
4	AF REC $\overline{P}$	O	"H" output when hi-fi audio REC.
5	$\overline{NTSC}$	O	"H" when PAL mode, "L" when NTSC mode.
6	FE ON	O	Flying erase ON/OFF. (Not used.)
7	REC CTL	O	REC CTL signal output.
8	CAP TRQ3	O	Capstan current control.
9	APC2	I	APC control input terminal 2.
10	APC1	I	APC control input terminal 1.
11	$\overline{NAREC P}$	I/O	Normal audio recording mode, H: recording mode.
12	$\overline{SP/EP/LP}$	O	"L" when SP mode, "H" when EP/LP mode.
13	CAM LOAD	I	Loading motor rotating direction control.
14	CAM UNLOAD	I	Loading motor rotating direction control.
15	CIN (REC PRF)	I	Erasing protection bab, cassette IN detection input.
16	RENTAL	I/O	YNR control.
17	NC	O	Not used.
18	NC	–	Not used.
19	3.58NTSC	I	Tuner audio selection signal. H:3.58 XTAL (Not used.)
20	NT JUDGE	I	4.43/3.58 judge input. (Not used.)
21	BLUE BACK ON	O	Not used.
22	PAL60	O	NTSC PB control signal. "H"when NTSC PB on pal TV. (Not used.)
23	$\overline{TV/VTR}$	O	"L" when VTR mode, "H" when TV mode.
24	AV CONT	O	ON/OFF control. (Not used.)
25	MESECAM	I/O	"L" in NT mode. (Not used.)
26	CBC ON	O	Cable box control on. (Not used.)
27	MODE4	I	Mechanism section CAM encoder input.
28	MODE3	I	Mechanism section CAM encoder input.
29	MODE2	I	Mechanism section CAM encoder input.
30	MODE1	I	Mechanism section CAM encoder input.
31	CAM 12V	O	CAM motor reference voltage.
32	T/E LED	O	T/E LED output.
33	CAP TRQ2	O	Capstan current control signal 2. L: FF/REW to STOP.
34	CAP TRQ1	O	Capstan current control signal 1. L: SLOW speed down.
35	$\overline{CAP STOP}$	O	Capstan STOP signal output.
36	$\overline{FULL ERS}$	O	Full erase control.
37	NC	O	Not used.
38	NC	O	Not used.
39	MP	I	Fixed to L.

Pin No.	Pin Name	I/O	Function
40	$\overline{ASURA RESET}$	I	System reset input.
41	VSS	–	GND.
42	XTAL	–	System clock. (16 MHz)
43	EXTAL	–	
44	$\overline{ASURA CS}$	I	S/S microcomputer chip select signal. (MA-304 board IC151)
45	S IN 0	I	Serial communication signal.
46	S OUT 0	O	Serial communication signal.
47	$\overline{SCLK}$	O	Serial communication signal.
48	NICOLE ON	O	Not used.
49	F MONO	O	Tuner Audio Select.
50	EDIT	O	EDIT control.
51	NC	O	Not used.
52	AVSS	–	UNSW GND.
53	AVREF	–	AD port reference input UNSW 5V.
54	AVDD	–	UNSW 5V.
55	APC ERROR	I	APC error input.
56	NTPB SW C	I	NTSC PB switch. (Not used.)
57	DEST2	I	DEW sensor input. (Not used.)
58	$\overline{VA ADJ}$	I	ADJ mode. 0V: SWP Adj, 2.5V: HiFi Adj
59	AF ENV	I	Hi-Fi audio playback signal envelope.
60	RF ENV	I	Video playback signal envelope.
61	T SENS	I	Take-up end sensor input.
62	S SENS	I	Supply end sensor input.
63	SREEL FG	I	S side reel FG input.
64	TREEL FG	I	T side reel FG input.
65	VDD	I	5V.
66	V SYNC	I	Composite sync input.
67	$\overline{PB CTL}$	I	Playback CTL input.
68	DRM PG	I	Drum PG input.
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71	POWER SAVE CONT	O	Power save control signal output. (Not used.)
72	CAP RVS	O	Capstan reverse control H when reverse.
73	CAP DA	O	Capstan error D/A output.
74	DRM DA	O	Drum PG input.
75	CTL REC	O	"H" CTL write.
76	CTL STEP	O	CTL amp, STEP operation control.
77	VDD	I	5V.
78	VDD	O	5V.

Pin No.	Pin Name	I/O	Function
79	CTL INDEX	O	CTL INDEX signal input.
80	SO1	I/O	Signal for serial communication.
81	$\overline{SCK1}$	I/O	Signal for serial communication.
82	LINE2	I	Input selection control signal 2.
83	LINE1	I	Input selection control signal 1.
84	APC PWM	O	PWM output for APC.
85	NC	I	Not used.
86	NC	–	Not used.
87	NC	–	Not used.
88	VSS	–	GND.
89	VDD	–	5V.
90	NC	–	Not used.
91	ORC SETTEI	O	H when ORC measurement.
92	A MUTE	O	"H" when audio Mute.
93	$\overline{SP}$	O	Normal audio tape speed select.
94	NA $\overline{SP}$	O	Normal audio tape speed select. (Not used.)
95	NAPB	O	Audio output control signal H when normal audio playback. (Not used.)
96	AF REC	O	"H" output when hi-fi audio REC.
97	JOG	O	"H" when trick play mode.
98	$\overline{VPB}$	O	Video system playback mode "L" when playback.
99	STEP PLS	O	Step pulse H when capstan step driving.
100	AF SWP	O	AF switching pulse output.

7-8. TUNER/TIMER/MODE CONTROL PORT FUNCTION DESCRIPTION (MA-304 BOARD IC151 CXP82948-022Q)

Pin No.	Pin Name	I/O	Function
1	$\overline{\text{EDS DAV}}$	I	Line 21H output pulse. Pulse signal synchronized with line 21 of input video signal.
2	$\overline{\text{POWER FAIL}}$	I	Power failure detect signal input.
3	H DET	I	Video signal detect signal input.
4	H DET 2	I	Video signal detect for VHS block.
5	EEP BUSY	I	EEP Busy signal input.
6	SIRCS OUT	O	CBC/SIRCS out.
7	BUZZER	O	Buzzer output.
8	$\overline{\text{STEREO}}$	I	STEREO input.
9	EEP $\overline{\text{RST}}$	O	EEPROM reset signal output (stereo).
10	SCK0	O	Clock for serial communication.
11	SI0	I	Serial data input.
12	SO0	O	Serial data output.
13	EEP $\overline{\text{CS}}$	O	EEPROM chip select signal output. (MA-304 board IC153)
14	LANC IN	I	LANC input.
15	LANC OUT	O	LANC output.
16	POWER CONT 0	O	Power supply control for AUDIO block.
17	AU CS	O	SOUND microprocessor chip select. (FM-27 board IC101)
18	AU RESET	O	SOUND microprocessor reset signal output.
19	AU STOP	O	SOUND microprocessor halt signal output.
20	AU TEMP IN	I	Audio block power failure detect signal input.
21	AU WATT IN	I	Audio output level detect signal input.
22	AU FAN H/L	O	FAN motor speed select.
23	AFT	I	Key reading A/D input.
24	AVDD	–	UNSW 5V.
25	AV REF	–	AD port reference input UNSW 5V.
26	SCL0	O	I²C BUS (clock)
27	CG $\overline{\text{CS}}$	O	Character generator chip select signal. (MA-304 board IC401)
28	SDA0	O	I²C BUS (data)
29	N. C	–	Not used.
30	AVSS	–	UNSW GND.
31	EXTAL	–	System clock. (16 MHz)
32	XTAL	–	
33	VSS	–	GND.
34	$\overline{\text{RST}}$	I	Reset signal in.
35	PLL CLK	O	Tuner clock signal.
36	PLL DATA	O	Tuner data signal.
37	PLL ENABLE	O	Tuner enable signal.
38	MAIN/$\overline{\text{SAP}}$	O	MAIN/$\overline{\text{SAP}}$ input.
39	$\overline{\text{SAP}}$	I	SAP control.

Pin No.	Pin Name	I/O	Function
40	EDS CS	O	EDS CS output.
41	TA MUTE	O	Tuner audio mute control signal.
42	AUTO PRESET	O	"H" during auto preset.
43-45	N. C	–	Not used.
46	CONT A	O	Video selector control output.
47	CONT B	O	Video selector control output.
48	A OUT CONT 1	O	Audio selector control output.
49	A OUT CONT 2	O	Audio selector control output.
50	LED POWER	O	Power LED control output.
51-71	N. C	–	Not used.
72	VDD	–	UNSW 5V.
73	TX	–	Connected to oscillator for clock.
74	TEX	–	
75	NC/VPP	–	Connected to 5V.
76	ASURA $\overline{\text{CS}}$	O	S/S microcomputer chip select. (MA-304 board IC201)
77	$\overline{\text{SYS RESET}}$	O	System reset signal output.
78	POWER CONT 1	O	Power supply control signal output.
79	POWER CONT 2	O	Power supply control signal output for PDC.
80	CG V	I	Vertical sync. signal input.

7-9. SOUND CONTROL MICROPROCESSOR PORT FUNCTION DESCRIPTION (FM-27 BOARD IC101 CXP82940-018Q)

Pin No.	Pin Name	I/O	Function
1	STOP	I	Halt signal input.
2	$\overline{\text{AUTO STOP}}$	–	FM/AM tuner signal input.
3	$\overline{\text{STEREO}}$	–	FM/AM stereo detect input.
4	$\overline{\text{SIRCS}}$	I	SIRCS signal input.
5	$\overline{\text{PHONE IN}}$	I	Phone insert detect input.
6	VOL UP	O	Motor driver control CW for master volume.
7	N. C	–	Not used.
8	$\overline{\text{–20dB MUTE}}$	O	20 dB mute signal output.
9	AU CS	I	Microprocessor chip select.
10	SCK	I	Clock for serial communication.
11	SI	I	Serial data input.
12	SO	O	Serial data output.
13	LED CLK	O	Clock for LED driver.
14	VOL DOWN	O	Motor driver control CCW for master volume.
15	LED DATA	O	Data for LED driver.
16	A/SIGNAL	–	Not used. (reserved)
17	KEY AD1	I	Key reading A/D input.
18	KEY AD2	I	Key reading A/D input.
19	$\overline{\text{S CLK}}$	O	Clock for SOUND periferal serial communication.
20	$\overline{\text{S DATA}}$	O	Data for SOUND periferal serial communication.
21	$\overline{\text{PLL DATA}}$	–	Not used. (reserved)
22	DMS 1	I	DMS encoder phase 1 signal input.
23	DMS 2	I	DMS encoder phase 2 signal input.
24	AVDD	–	UNSW 5V.
25	AVREF	–	AD port reference input UNSW 5V.
26	TONE CS	O	Tone controller chip select. (SR-24 board IC401)
27	LED CS	O	Chip select for LED driver. (FM-27 board IC201)
28	S CE1	O	Chip select for selector.
29	$\overline{\text{S CE2}}$	O	Chip select for surround IC.
30	AVSS	–	GND.
31	EXTAL	–	System clock. (16 MHz)
32	XTAL	–	
33	VSS	–	GND.
34	$\overline{\text{RST}}$	I	Reset signal input.
35	KEY MAT0	I	Key reading input.
36	KEY MAT1	I	Key reading input.
37	KEY MAT2	I	Key reading input.
38	KEY MAT3	I	Key reading input.
39	T MUTE	O	FM/AM tuner mute output.

Pin No.	Pin Name	I/O	Function
40	IC MUTE	O	Audio mute control output.
41	$\overline{\text{FUNC MUTE}}$	O	Audio mute control output.
42	$\overline{\text{LOW BOOST}}$	O	Audio bass boost mode control output.
43	VFDP	–	"-30V".
44-58	SEG 1-15	O	VFP segment output.
59	N. C	–	Not used. (reserved)
60-71	GRID 12-1	O	VFP grid output.
72	VDD	–	UNSW 5V.
73	TX	–	Not used. (reserved)
74	TEX	–	Not used. (reserved)
75	NC/VPP	–	Connect to +5V.
76	BRIDGE	O	Audio supply voltage select relay control.
77	PHONE RY	O	Phone relay control output.
78	SURR RY	O	Surround relay control output.
79	SP RY	O	Main speaker ralay control output.
80	$\overline{\text{PROTECT}}$	I	Speaker protection detect signal input.

SECTION 8
ADJUSTMENTS

8-1. MECHANICAL ADJUSTMENTS

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the VHS Mechanical Adjustment Manual IV (H MECHANISM) (9-973-623-11).
However, for the procedures how to see the Track Shift mode, refer to the following text.

8-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 8-12 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

[Instruments for Use]

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A prove 10 : 1 should be used unless otherwise specified.)
3) Frequency counter (8 columns or more)
4) NTSC pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion rate meter
10) Modulation Analyzer
11) Alignment tape
    • Normal-VHS (KRV-51N2)
    Part No. : 8-192-605-32
13) Extension cable
    ① FM-27 Board
    • FM-27 board CN102←→SR-24 board CN201
    Part No. J-6090-063-A (23pin)
    ② MA-304 Board
    • MA-304 board CN903←→FM-27 board CN101
    Part No. J-6090-064-A (19pin)
    ③ MD-69 Board
    • MD-69 board CN650←→MA-304 board CN902
    • MD-69 board CN651←→MA-304 board CN904
    Part No. J-6090-066-A (12pin)
    ④ IO-60 Board
    • IO-60 board CN104←→RP-226 board CN601
    Part No. J-6090-070-A (9pin)

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown is the following diagram.

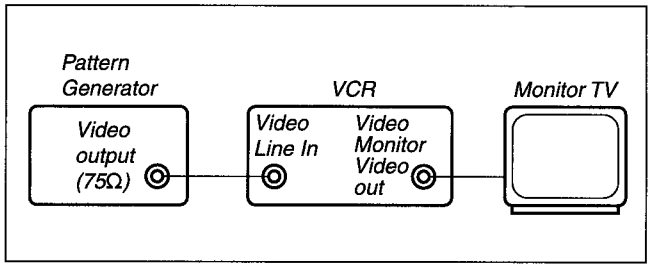


Fig. 8-2-1.

Unless otherwise specified, place the switches and controls of this unit in the following positions :

- VHS switch ..... LINE
- TAPE SPEED (SP/EP) switch ..... SP

2-1-3. Check of Input Signal

Because the video signal obtained from the pattern generator is used as the adjustment signal for the adjustment, the video output signal is required to satisfy the specified value.

Connect the oscilloscope to the picture input terminal (terminal board). And check that the synchronizing signal amplitude of the video signal is approximately 0.3V, the amplitude of the picture part is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and is flat, and the ratio of level between the burst signal and the "red" signal is 0.33 : 0.66. The video signal (color bar) used for the adjustment is shown in the fig. 8-2-2.

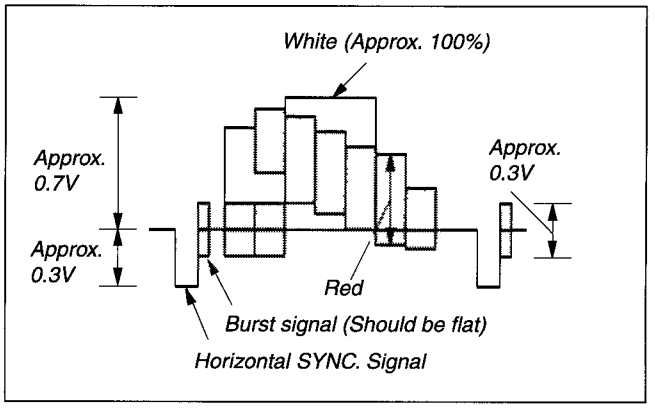


Fig. 8-2-2. Color bar signal of the pattern generator

2-1-4. Alignment Tape

• Contents of KRV-51N2 (Normal-VHS)

	Mode	Period	Video signal	Audio signal	
				Hi-Fi	Normal
1	SP	7 minutes	Color bar	400 Hz	400 Hz
2	SP	3 minutes	Mono scope	400 Hz	400 Hz
3	EP	7 minutes	Color bar	400 Hz	400 Hz
4	EP	3 minutes	Mono scope	400 Hz	400 Hz

2-1-5. Specified Input-output Level and the Impedance

VCR

VIDEO 1 IN
VIDEO 2 INPUT
LINE IN
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 Ω
unbalanced, sync negative
AUDIO IN, phono jacks (2)
Input level: 327 mVrms
Input impedance: more than 47 kΩ

MONITOR VIDEO OUT
Phono jack (1)
Output signal: 1 Vp-p, 75 Ω
(unbalanced), sync negative

TV IN
VIDEO IN, phono jack (1)
Input signal : 1 Vp-p, 75Ω,
unbalanced, sync negative
AUDIO IN, phono jack (2)
Input level : 327 mVrms
Input impedance : more than 47 kΩ

Amplifier

POWER OUTPUT
AV100U :
with 8Ω load, both channels driven, from 20-20,000 Hz, rated 80 W per channel minimum RMS power, with no more than 0.09% total harmonic distortion from 250 mW to rated output
AV100C :
Stereo mode (8Ω at 20 Hz-20 kHz less than 0.09% total harmonic distortion)
70 W + 70 W

SURROUND MODE
AV100U :
(8Ω at 1 kHz, THD 0.8%)
Front 80 W/ch
Center 80 W
(only in the PRO LOGIC and THEATER mode)
Rear 80 W
Dynamic power output
8Ω : 125 W + 125 W
4Ω : 165 W + 165 W
AV100C :
(8Ω at 1 kHz, THD 0.8%)
Front 70 W/ch
Center 70 W
(only in the PRO LOGIC and THEATER mode)
Rear 70 W
Dynamic power output
8Ω : 95 W + 95 W
4Ω : 130 W + 130 W

FREQUENCY RESPONSE
CD, TAPE/MD, VIDEO 1, VIDEO 2, TV, and LINE: 10 Hz-50 kHz ±1 dB

INPUTS
CD

Sensitivity	220 mV
Impedance	50 kΩ
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5V)

TAPE/MD, VIDEO1, VIDEO2, TV, and LINE

Sensitivity	180 mV
Impedance	50 kΩ
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

OUTPUTS
TAPE/MD REC OUT
Voltage 180 mV,
Impedance 10 kΩ
MIX AUDIO OUT
Voltage: 2 V
Impedance: 10 kΩ
PHONES
Accepts low and high impedance headphones

MUTING
-20 dB

BASS BOOST
+10 dB at 70 Hz

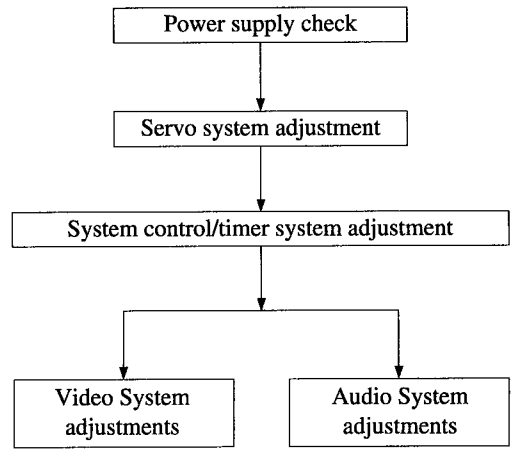
TONE
±8 dB at 100 Hz and 10 kHz

FM TUNER SECTION
Tuning range
87.5 - 108.0 MHz
Antenna terminal
75Ω, unbalanced

AM TUNER SECTION
Tuning range
With 10 kHz interval
530 - 1710 kHz
With 9 kHz interval
531 - 1710 kHz
Antenna Loop antenna

2-1-6. Adjustment Procedures

Perform the adjustment following the procedures given below.

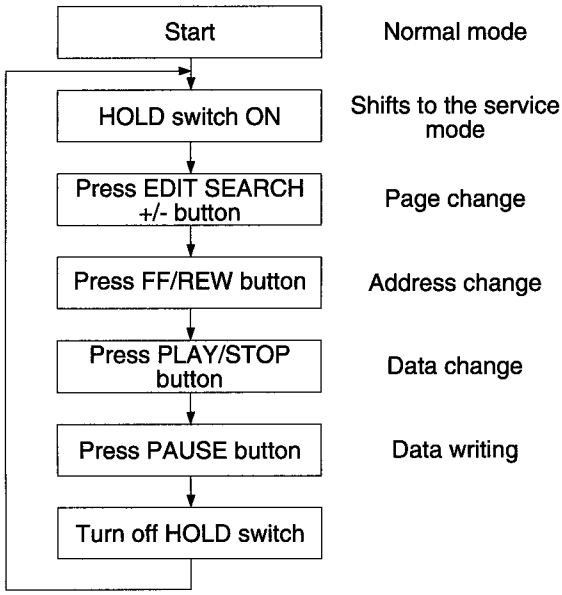


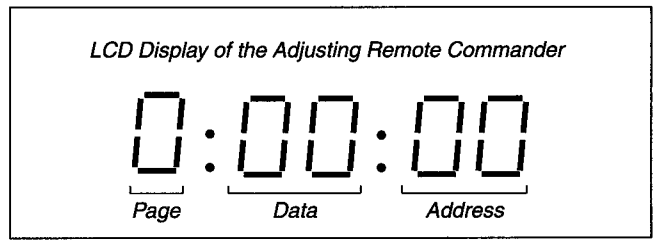
2-2. SERVICE MODE

2-2-1. Setting the Service Mode

The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.
The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

1) Shifting to the service mode using the adjusting remote commander





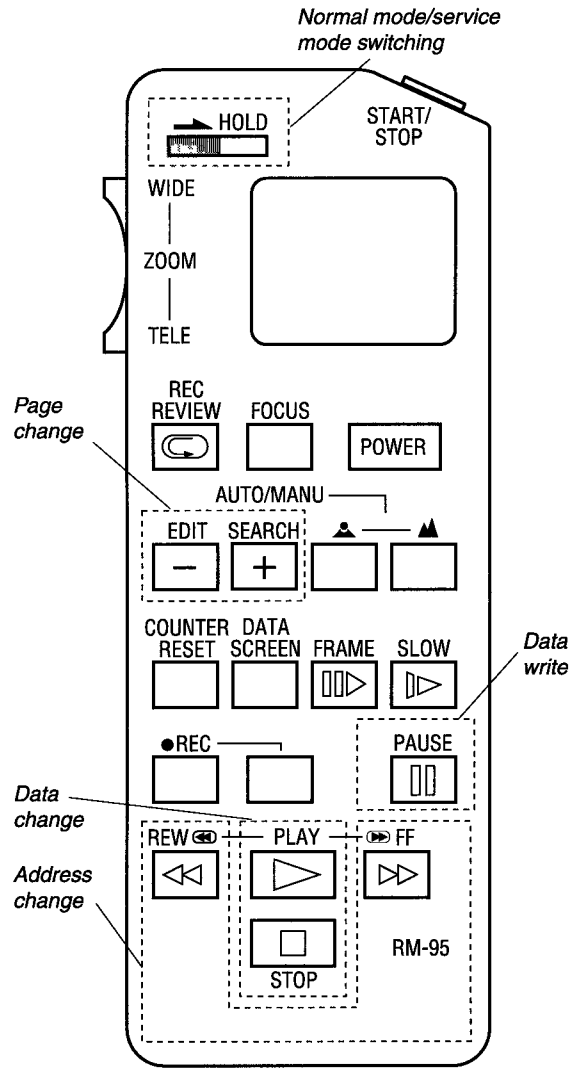
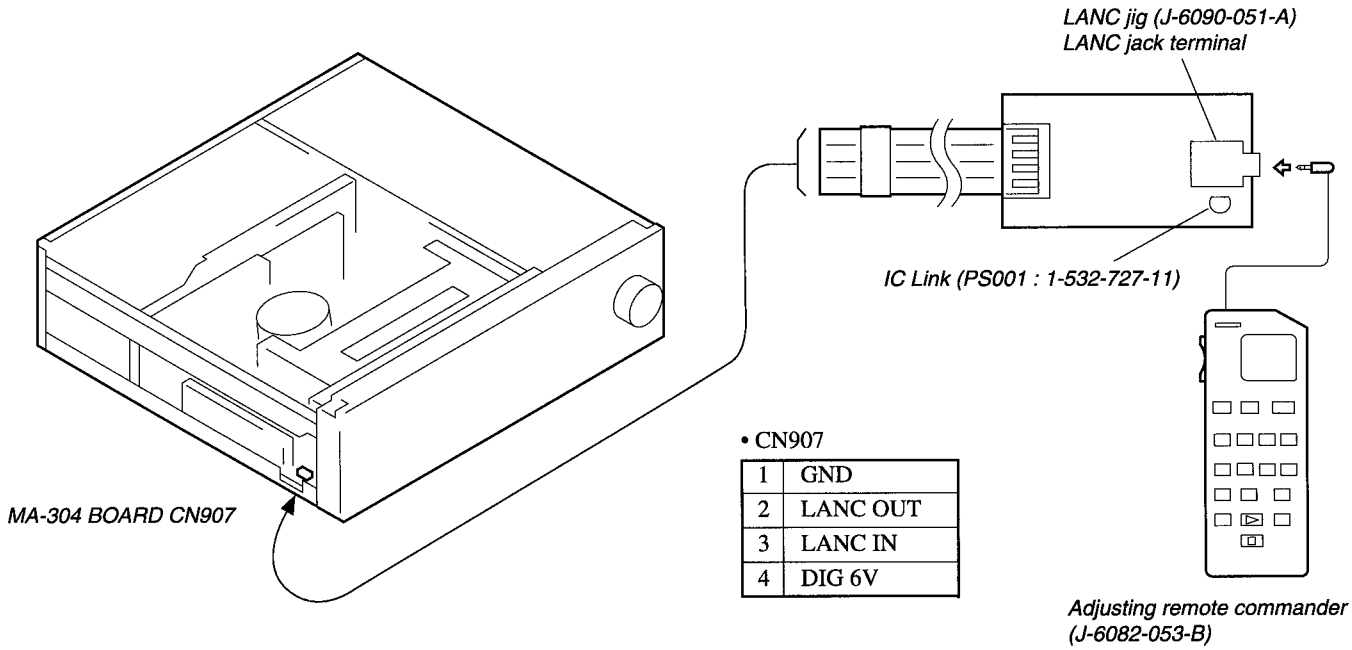


Fig. 8-2-3. Adjusting remote commander RM-95 (J-6082-053-B)

Command Name	Command Function	Normal LANC Command
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Writes data in the EEPROM, RAM	Pause

2) Adjusting remote commander connecting procedure.
SLV-AV100 series does not have the LANC jack for LANC adjusting remote commander. When adjusting, connect the LANC jig (J-6090-051-A) to CN907 on MA-304 board.

Note: When connecting or disconnecting LANC jig to CN907 on MA-304 board, first connect the adjusting remote commander to the jack on LANC jig before connecting LANC jig to CN907.
Connection or disconnection of the adjusting remote commander in the condition LANC jig is connected to CN907 causes IC link to damage itself.



• CN907

1	GND
2	LANC OUT
3	LANC IN
4	DIG 6V

Fig. 8-2-4.

2-2-2. Page F Data Modification

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to micro processor versions. Change the data by manual input, and arrange it.

Note 1: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote control unit every time the new data is set.

Part Name	Version
CXP82948-022Q	Ver. 01

Address	C	U
01	01	01
02	10	10

2-3. POWER SUPPLY CHECK

2-3-1. Output Voltage Check 1 (PS-399 Board)

Mode	E-E
Measuring instrument	Digital voltmeter
+ FV check	
Measurement point	CN202 pin④ (GND : pin①)
Specified value	4.3±1.0Vdc
- 30V check	
Measurement point	CN202 pin②
Specified value	– 30±3Vdc
- 8V check	
Measurement point	CN202 pin⑤
Specified value	– 13.5±2.0Vdc
D 6V check	
Measurement point	CN202 pin⑥, CN203 pin⑦
Specified value	5.9±0.5Vdc
SW 12V check	
Measurement point	CN202 pin⑧, CN203 pin⑨
Specified value	11.9±0.5Vdc
13V check	
Measurement point	CN202 pin⑫, CN203 pin⑩⑪
Specified value	13±1Vdc
38V check	
Measurement point	CN202 pin⑬
Specified value	38±3Vdc
SW 5V check	
Measurement point	CN202 pin⑭, CN203 pin⑤
Specified value	5.2±1.0Vdc
MTR 12V check	
Measurement point	CN203 pin①②
Specified value	12.1±1.0Vdc

2-3-2. Output Voltage Check 2 (MP-43 Board)

Mode	E-E
Measuring instrument	Digital voltmeter
40V check	
Measurement point	CN602 pin④
Specified value	56.5±3Vdc
- 40V check	
Measurement point	CN602 pin⑤
Specified value	– 56.5±3Vdc
+ UNREG check	
Measurement point	CN802 pin⑨
Specified value	21.8±1.5Vdc
- UNREG check	
Measurement point	CN802 pin⑧
Specified value	– 21.8±1.5Vdc
24V check	
Measurement point	CN704 pin②
Specified value	24±2Vdc

[Check Method]

1) Check that each voltage satisfied the specified value.

Note : AC input voltage = 120±3Vac (AC-108 board)

2-4. SERVO SYSTEM ADJUSTMENT

2-4-1. RF Switching Position Adjustment (RP-226 Board)

[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs. If this specification is not satisfied, the noise will increase and cracking sounds will be produced.

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	CH1 : CN502 pin② (RF MONI)(RP-226 board) CH2 : CN502 pin③ (RF SWP)(RP-226 board)
Measuring instrument	Oscilloscope
Adjustment element	CH/PRESET TUNING +/– button
Specified value	No dropouts in the RF signal

[Adjusting Method]

1) Playback the alignment tape. short the adjustment land JL207 (MA-304 board) to the ground for 300 msec or more to enter the RF SWP adjustment mode.
2) Verify that "AD RF xx (xx : data value)" are indicated on the display tube.
3) Use CH/PRESET TUNING +/– buttons to adjust so that the portion A is minimized.
4) Press PAUSE and write the data.

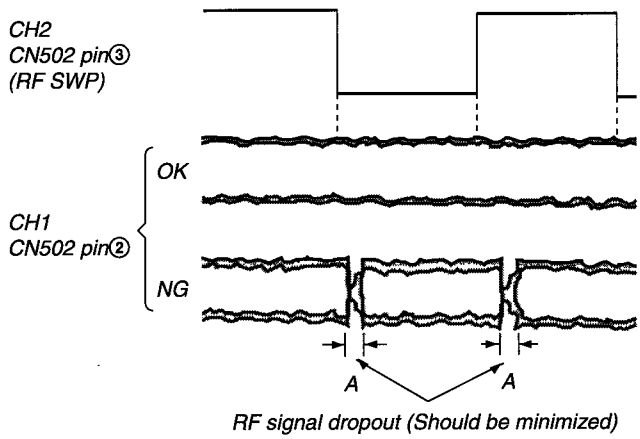


Fig. 8-2-5.

2-5. SYSTEM CONTROL/TIMER SYSTEM CHECK

2-5-1. Clock Check (MA-304 Board)

[Check Object]

To raise the accuracy of the clock.
If the clock is not accurate, its error difference will gradually increase.

Measurement point	IC151 pin⑦ (BUZZER OUT)
Measuring instrument	Frequency counter (Interval counter mode)
Specified value	0.1249995±0.0000005sec

[Check Method]

1) Connect the LANC jig and the adjusting remote commander.
2) Release the protect.
   Page : 1, Address : 00, Data : 80.
3) Page : 2, Address : 00, Data : 02.
4) Page : 2, Address : 01, Data : 01.
5) After verification, turn the power off once to reset.

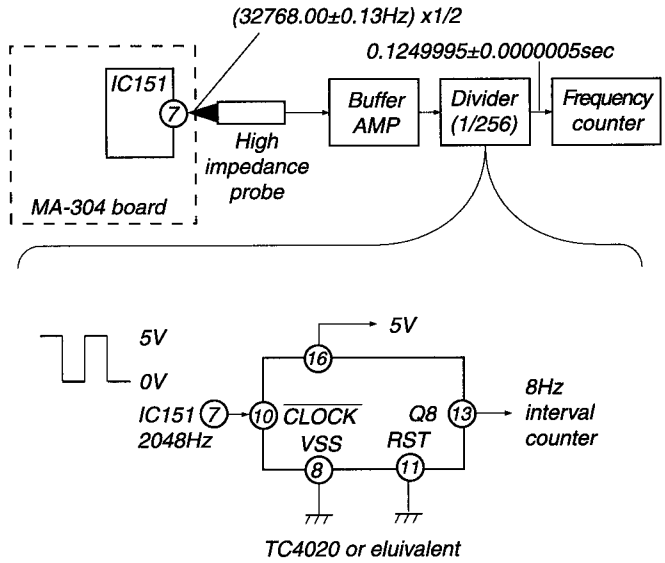


Fig. 8-2-6.

2-6. VIDEO SYSTEM ADJUSTMENTS

For the video system adjustment, follow the adjustment procedures given below as a rule. The color bar video signal supplied from the pattern generator is used as the video input signal for the video system adjustment of the recording mode. Check that the signal satisfies the specified value designated in the "Check of input signal (Fig. 8-2-2).

[Adjustment Sequence]

1) X'tal OSC Check
2) SYNC AGC Check
3) White Clip/Dark Clip Check
4) REC Y Level Check
5) REC Chrome Level Check
6) Playback Level Check

2-6-1. X'tal OSC Check (MA-304 Board)

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	IC303 pin㉗
Measuring instrument	Oscilloscope and Frequency counter
Specified value	NTSC : 3.579545±82Hz

Note : A frequency counter should be connected through a buffer ampifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check that the oscillation frequency satisfies the specified value and that the oscillation voltage is 450±200mVp-p.

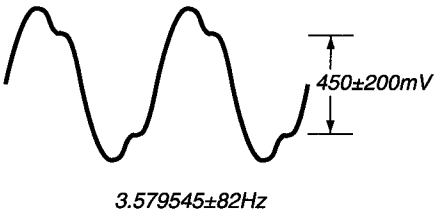


Fig. 8-2-7.

2-6-2. SYNC AGC Check (MA-304 Board)

Mode	E-E
Signal	Color bar
Measurement point	Video monitor video output terminal
Measuring instrument	Oscilloscope
Specified value	A=2.05±0.14Vp-p

[Check Method]

1) Check that the SYNC AGC level (A) satisfies the specified value.

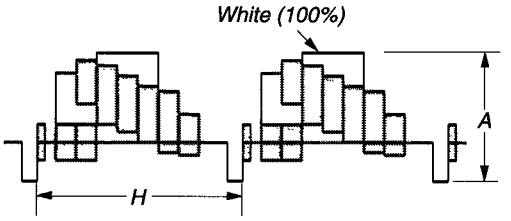


Fig. 8-2-8.

2-6-3. White Clip/Dark Clip Check (MA-304 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC303 pin⑦
Measuring instrument	Oscilloscope
Specified value	White clip : A=190±15% Dark clip : B=52±10%

[Check Method]

1) Check that the white clip level A is 190±15% to the white (100%) level.
2) Check that the dark clip level B is 52±10% to the white (100%) level.

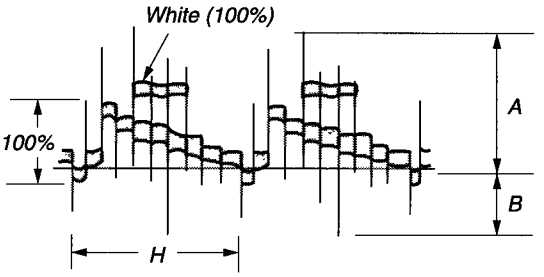


Fig. 8-2-9.

2-6-4. REC Y Level Check (MA-304 Board)

Mode	E-E
Signal	Color bar
Measurement point	Q352Ⓔ
Measuring instrument	Oscilloscope
Specified value	A=950±100mVp-p

[Check Method]

1) Check that the record Y level satisfies the specified value.

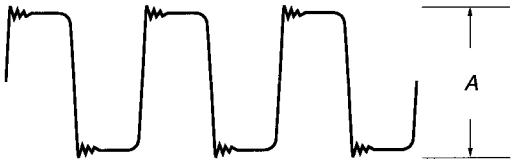


Fig. 8-2-10.

2-6-5. REC Chroma Level Check (MA-304 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC303 pin㊳
Measuring instrument	Oscilloscope
Specified value	A=170±10mVp-p

[Adjusting Method]

1) Check that the record chroma level satisfies the specified value.

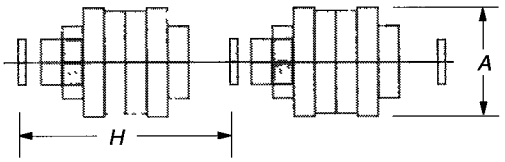


Fig. 8-2-11.

2-6-6. Playback Level Check (MA-304 Board)

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	Video monitor video output terminal
Measuring instrument	Oscilloscope
Specified value	A=2.05±0.18Vp-p

[Check Method]

1) Check that the playback level satisfies the specified value.

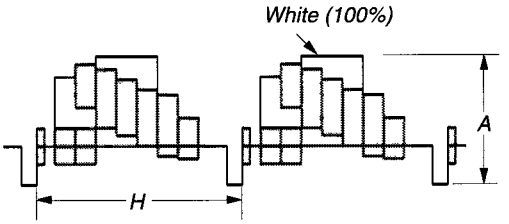


Fig. 8-2-12.

2-7. AUDIO SYSTEM ADJUSTMENTS

- For the adjustment of the audio system, perform in the SP mode if there is no special notes. Use the alignment tape.
- Adjust both LCH and RCH.

[Connecting Instruments]

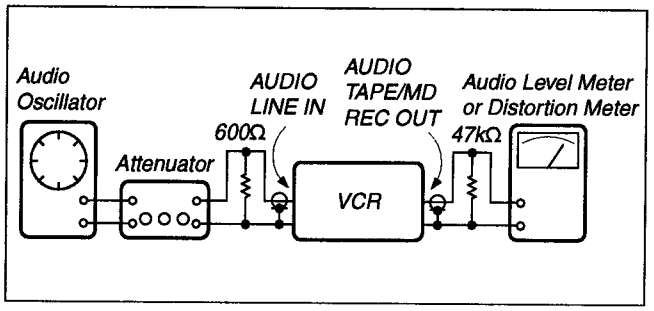


Fig. 8-2-13.

● Hi-Fi Audio System Adjustment

Perform the adjustment setting the switches and controls on the following positions if there is no special indications.

- [AUDIO] switch ..... LINE
- [AUDIO MONITOR] switch * ..... Stereo

* : Remote commander

2-7-1. AF Switching Position Adjustment (RP-226 Board)

[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs. If this specification is not satisfied, the noise will increase and cracking sounds will be produced.

Mode	Playback
Signal	Alignment tape
Measurement point	CH1 : JL707(RP-226 board) CH2 : CN502 pin③(RP SWP)(RP-226 board)
Measuring instrument	Oscilloscope
Adjustment element	CH/PRESET TUNING [+/−] button
Specified value	No dropouts in the RF signal

[Adjusting Method]

1) Playback the alignment tape. short the adjustment land JL207 (MA-304 board) to the ground for 300 msec or more to enter the RF SWP adjustment mode.
2) Verify that "AD RF xx (xx : data value)" are indicated on the display tube.
3) Press [REC] button.
4) Verify that "AD HF xx (xx : data value)" are indicated on the display tube.
5) Use [CH/PRESET TUNING +/−] buttons to adjust so that the portion A is minimized.
6) Press [PAUSE] and write the data.

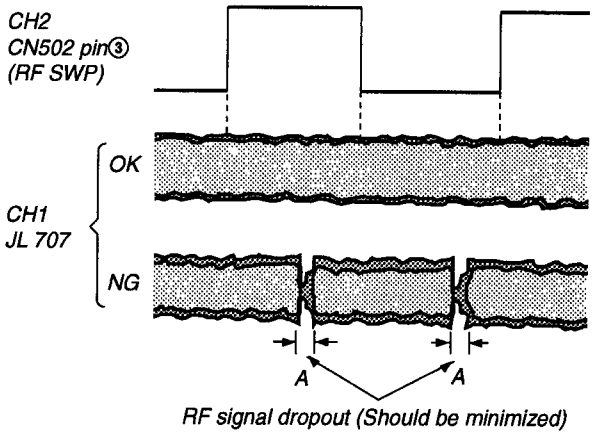


Fig. 8-2-14.

Note : The RF SWP adjustment should be completed before performing this adjustment.

2-7-2. VCO f_0 Adjustment (MA-304 Board)

[Adjustment Object]

To attain Hi-Fi audio compatibility.

If this apecification is not satisfied, the sound will be distorted.

Mode	Recording
Signal	No-signal
Measuring instrument	Frequency counter
Measurement point	CN503 pin①
1.4MHz adjustment	
Adjustment element	RV521 (Lch)
Specified value	1299±1kHz
1.8MHz adjustment	
Adjustment element	RV531 (Rch)
Specified value	1700±1kHz

Note : Connect the frequency counter through the buffer amplifier (oscilloscope, etc) with high input resistance (1MΩ or more) and low capacity (10pF or less).

[Adjusting Method]

1) Connect pin④ of CN503 to the ground.
2) Set [TRACKING] button on the remote commander to AUTO.
3) Adjust RV521 so as to obtain 1299±1kHz.
4) Set [TRACKING] button on the remote commander to MANUAL.
5) Adjust RV531 so as to obtain 1700±1kHz.

2-7-3. Deviation Check (MA-304 Board)

Mode	Recording
Signal	400Hz, –7.5dBs : CN502 pin⑬⑮
Measurement point	CN503 pin①
Measuring instrument	Modulation Analyzer
Specified value	50±50kHz

[Check Method]

1) Connect pin④ of CN503 to the ground.
2) Set [TRACKING] button on the remote commander to AUTO.
3) Verify that the output signal satisfies the specification.
4) Set [TRACKING] button on the remote commander to MANUAL.
5) Verify that the output signal satisfies the specification.

2-7-4. Band Pass Filter f_0 Adjustment (MA-304 Board)

[Adjustment Object]

To separate the carrier accurately and ensure that the filter for cutting the video signal functions normally.

If this specification is not satisfied, the sound will be distored.

Mode	Playback
Signal	1,608MHz, 200mVp-p : CN503 pin③
Measurement point	CN503 pin①
Measuring instrument	Oscilloscope
Adjustment element	RV541
Specified value	Adjust the A and B amplitudes to the same level. (A–B=±2mVp-p)

[Adjusting Method]

1) Connect pin④ of CN503 to the ground.
2) Set [TRACKING] button on the remote commander to AUTO. (Lch signal output)
3) Assume the output value at this time as A.
4) Set [TRACKING] button on the remote commander to MANUAL. (Rch signal output)
5) Assume the output value at this time as B. Adjust RV541 so that A is equal to B.

● Normal Audio System Adjustment

- Adjust in the SP mode if there is no special indications.
- Perform the adjustment setting the switch on the following positions.
- [AUDIO] switch ..... LINE
- [AUDIO MONITOR] switch * NORMAL*1

*1 : No indicates on the display window indicator and monitor TV.

[Adjustment Sequence]

1) ACE head adjustment ..... Refer to the VHS mechanical part adjustment manual IV
2) Recording bias check
3) E-E output level check
4) Overall output level and distortion factor check.
5) Overall noise level check.

2-7-5. ACE Head Adjustment

Refer to the "VHS Mechanical adjustment manual IV" (9-973-623-11).

2-7-6. Recording Bias Check (MA-304 Board)

Mode	Self-record playback
Signal	400Hz, – 27.5dBs } Audio line in 7kHz, – 27.5dBs } (L or R)
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	0±3dBs

[Adjusting Method]

1) Supply a signal of 400Hz, –27.5dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –27.5dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400Hz and 7kHz.
7) Confirm that the 7kHz playback output levels within a range of the 400Hz playback output level 0±3dB.

2-7-7. E-E Output Level Check

Mode	E-E
Signal	400Hz, – 7.5dBs : Audio line in
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	– 7.5±2dBs

[Check Method]

1) Input signal of 400Hz and –7.5dBs to the L and R channel of the audio input at the same time.
2) Check that the audio output level is –7.5±2dBs.

2-7-8. Overall Output Level and Distortion Factor Check

Mode	Self-record playback
Signal	400Hz, –7.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter and Distortion meter
Specified value	Playback Level : –7.5±3dBs Distortion : 4.0% or less

[Check Method]

1) Record signal.
2) Playback the recorded portion.
3) Check that the output level is –7.5±3dBs.
4) Check that the distortion factor is 4.0% or less on the left and right side.

2-7-9. Overall Noise Level Check

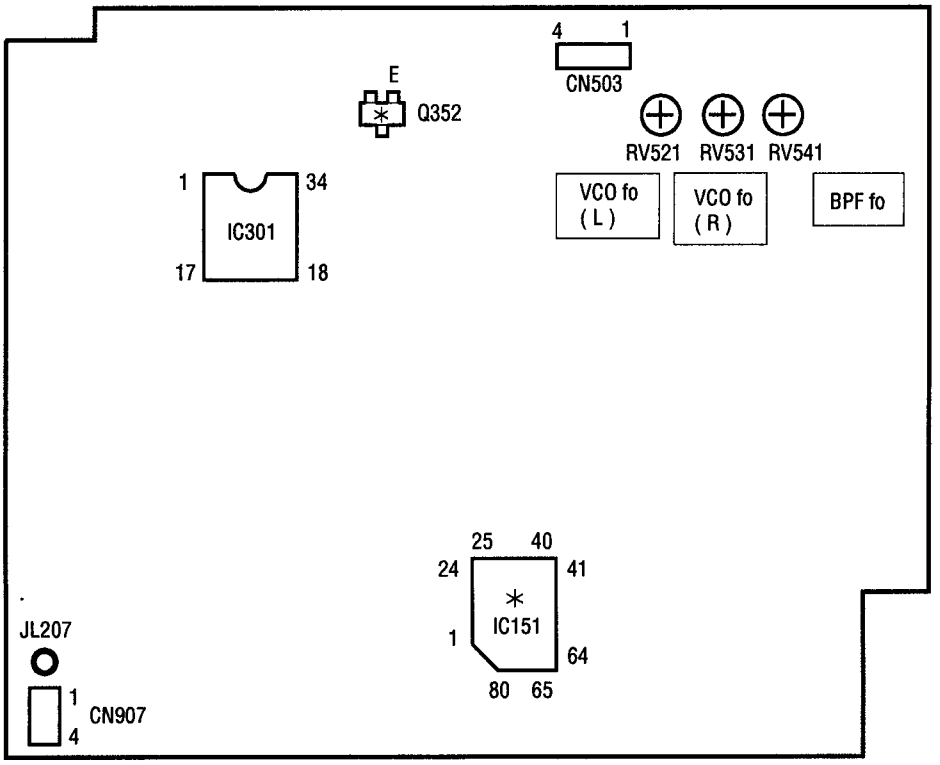
Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio Line Input jacks, left and right.)
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	–46dBs or less

[Check Method]

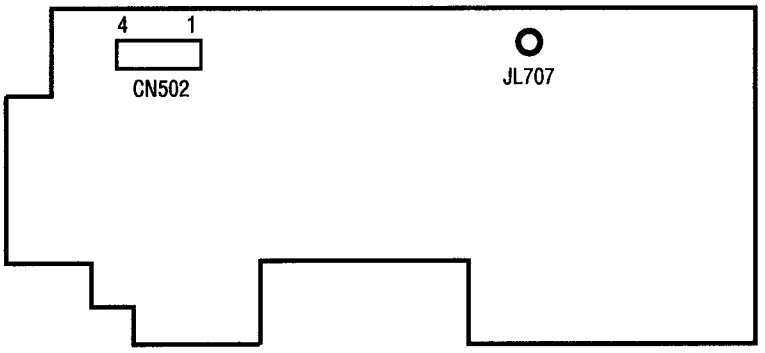
1) Record.
2) Playback recorded portion.
3) Check that noise level is –46dBs or less on the left and right side.

2-8. ADJUSTMENT PARTS LOCATION DIAGRAMS

MA-304 BOARD (COMPONENT SIDE)



RP-226 BOARD (COMPONENT SIDE)



∗ : Parts on conductor side.